

Anthony S. Epolite
Tax Counsel IV
Board of Equalization, Appeals Division
450 N Street, MIC:85
PO Box 942879
Sacramento CA 95814
Tel: (916) 323-3134
Fax: (916) 324-2618

Attorney for the Appeals Division

BOARD OF EQUALIZATION

STATE OF CALIFORNIA

In the Matter of the Appeal of:

PACIFIC COAST BUILDING

PRODUCTS, INC.¹

ERIN SULLIVAN

PATRICIA D. ANDERSON (DECEASED)

DAVID & CHRISTINE LUCCHETTI

CAROL ANDERSON WARD

KEITH & MARY HARRIS

JOHN E. ANDERSON

JAMES & JACQUELYN ANDERSON

) **HEARING SUMMARY**

) **CORPORATION AND PERSONAL
INCOME TAX APPEALS**

) Case No. 514183

) Case No. 573889

) Case No. 573893

) Case No. 573905

) Case No. 573897

) Case No. 573908

) Case No. 573901

) Case No. 573911

Years

Claimed R&D
Credit Amounts²

Refund Claimed

March 31, 1999
March 31, 2000

\$411,759
\$401,572

N/A³
N/A

¹ Appellant Pacific Coast Building Products, Inc. (PCB) is located in Rancho Cordova, Sacramento County.

² The amount of R&D credits claimed in this column, and the refund amounts claimed in the next column, are amounts claimed by appellant PCB. Refund amounts claimed by the individual appellants are reflected in respondent's brief dated July 12, 2011.

³ Appellant PCB filed refund claims for the tax years ending March 31, 1999, and March 31, 2000, but did not file amended returns for these tax years.

<u>Years</u>	<u>Claimed R&D Credit Amounts</u>	<u>Refund Claimed</u>
March 31, 2001	\$625,301	\$202,491
March 31, 2002	\$493,988	\$160,062
March 31, 2003	\$382,705	\$124,103
March 31, 2004	\$395,374	\$128,149

Representing the Parties:

For Appellants: Reed Schreiter, PricewaterhouseCoopers

For Franchise Tax Board: Jason Riley, Tax Counsel III

QUESTIONS: (1) Whether appellants have presented evidence sufficient to establish that appellant Pacific Coast Builders, Inc. (PCB)⁴ conducted activities that constituted “qualified research” as defined in Internal Revenue Code (IRC) section 41.

(2) If appellants have established that PCB engaged in “qualified research” as defined in IRC section 41(d), have appellants established that PCB met its burden of proving “qualified research expenses” for the tax years at issue.

(3) Whether appellants have substantiated PCB’s fixed-base percentage, as required by IRC section 41(c)(3)(A).

HEARING SUMMARY

Background

Appellant PCB, a subchapter S Corporation, is a manufacturer, contractor, and distributor of building products such as wallboard, roofing, and insulation.

In 2005, appellant PCB filed amended California returns for the tax years ending March 31, 2001, March 31, 2002, and March 31, 2003, to claim research and development (R&D) tax credits⁵ based upon an R&D tax credit study prepared by PricewaterhouseCoopers (PwC) and then submitted refund claims (totaling \$2,321,585) to respondent for the tax years ending March 31, 1999, March 31, 2000, March 31, 2001, March 31, 2002, and March 31, 2003. (App. Opening Br., p. 13.)

⁴ Appellant PCB is usually referred to as “PCB” (instead of “appellant PCB”) in this hearing summary.

⁵ In this hearing summary, the Appeals Division staff refers to the research and development credit at various times as the “R&D tax credit(s)”, the “R&D credit(s)”, or simply as the “credit(s)”.

1 PCB asserted that the claimed R&D credits were attributable to projects at the PABCO Paper Vernon
2 facility, the PABCO Gypsum Newark facility, the H.C. Muddox Sacramento facility, the Basalite Dixon
3 facility, the Basalite Tracy facility, and the Gladding McBean Lincoln facility.⁶

4 Overview

5 Appellants state that PCB engaged (PwC) to conduct an R&D study⁷ of its operations for
6 the 1999 through 2005 tax years. Appellants assert that this study documented PCB's qualifying
7 research activities and qualifying research expenses. Appellants assert that PCB provided supporting
8 contemporaneous documents, a R&D tax credit study for the years at issue, schedules, company
9 materials, and other supporting information in support of its claimed R&D credits during the audit
10 performed by respondent. Appellants also assert that respondent observed, via plant tours during the
11 audit, the qualified research activities which occurred at PCB's manufacturing plants. At the conclusion
12 of the audit, respondent denied the entire R&D credit claimed by PCB. Appellants contend that PCB
13 relied upon an R&D tax credit study to calculate and support the credits claimed and that the Internal
14 Revenue Service (IRS) examined the same R&D tax credit study and allowed the entire amount of the
15 federal R&D credits claimed by PCB (i.e., issuing a "no change" letter to PCB) for the tax years ending
16 March 31, 2005, and March 31, 2006. (App. Opening Br., pp. 1-2; 13-15.)

17 As mentioned, respondent's auditor conducted plant tours at the Vernon, Newark, and
18 Gladding McBean Lincoln plants. At the conclusion of its audit, respondent determined that PCB did
19 not qualify for the R&D tax credit, concluding that PCB failed to substantiate that it engaged in
20 "qualified research" and that PCB failed to substantiate "qualified research expenses" and its fixed-base
21 percentage. (Resp. Opening Br., p. 9.)

22 With its opening brief, appellants filed 18 exhibits which included approximately 1,300
23 pages of documentation that respondent asserts were not previously submitted. In other words,
24 respondent alleged that it had not seen these documents during the course of the audit as part of PCB's
25

26 ⁶ This appeal was initially accepted as an appeal of appellant PCB for tax years ended 1999 through 2003. During the course
27 of the appeal, the individual shareholders were added as appellants, and the tax year ending in 2004 was added for all
28 appellants.

⁷ The study is referred to variously as the "R&D tax credit study", the "tax credit study", the "R&D credit study", the "R&D study", or simply "the study", in this hearing summary.

1 tax credit study. Ultimately, respondent was given additional time to file its opening brief and was
2 allowed to address this submission. Pages 30 to 82 of respondent's opening brief reflect respondent's
3 analysis of appellants' submission (i.e., the exhibits attached to appellants' opening brief). (Resp.
4 Opening Br., p. 10.)

5 Respondent notes that the IRS issued a "no change" audit for PCB's tax years ending
6 March 31 2005, and March 31, 2006. Respondent asserts that, since the tax years at issue in this appeal
7 are for the tax years ending March 31, 1999, through March 31, 2004, the IRS action in these subsequent
8 years is irrelevant to the present appeal. Moreover, respondent notes that (1) there is no indication that
9 the IRS examined anything other than the federal computation of the R&D credit and (2) the IRS did not
10 examine PCB's alleged California "qualified research" activities. Respondent contends that it
11 conducted its own, independent audit of the claimed R&D credits based upon California law and that it
12 is not required to follow an IRS determination that is outside of the tax years at issue, is erroneous, and
13 when the IRS did not examine the alleged California "qualified research" activities. (Resp. Opening Br.,
14 p. 29.)

15 According to appellants' opening brief and information on appellant PCB's website⁸ and
16 in its corporate brochure,⁹ PCB is comprised of various subsidiaries, including PABCO Building
17 Products, LLC, PABCO Clay Products, LLC, and Basalite Concrete Products, LLC (which includes the
18 Tracy and Dixon plants).¹⁰ Further, PABCO Building Products, LLC consists of various divisions,
19 including PABCO Gypsum (Newark plant) and PABCO Paper (Vernon plant). PABCO Clay Products,
20 LLC likewise consists of various divisions, including Gladding McBean (Lincoln plant) and H.C.
21 Muddox (Sacramento and Ione plants).¹¹ At times throughout this hearing summary, references are

22
23 ⁸ <http://www.paccoast.com>

24 ⁹ http://www.paccoast.com/images/PCBP_Corporate_Brochure.pdf

25 ¹⁰ PCB has several other subsidiaries which are not relevant to this appeal. Board staff notes that the subsidiaries mentioned
26 here and PCB's other subsidiaries have plants and facilities located in California and/or in other western states. Only PCB's
27 plants and facilities located in California are identified in this paragraph, and are discussed in this appeal, as the R&D credits
claimed only relate to activities at PCB's California locations.

28 ¹¹ Board staff notes that appellants' opening brief identifies PABCO Gypsum, PABCO Paper, Gladding McBean, and
H.C. Muddox as divisions of PABCO Building Products, LLC. We speculate that, perhaps, PABCO Clay Products, LLC
came into existence after the filing of appellants' opening brief.

made to PCB's various subsidiaries when discussing individual plants and facilities. However, for the most part, the plants and facilities are discussed only with reference to the parent company, PCB.

Exhibit 2 of appellants' opening brief lists the following as the major R&D projects in which PCB was engaged in California during the years at issue in this appeal:

PABCO Paper Vernon Plant	PABCO Gypsum Newark Plant	H.C. Muddox Sacramento Plant	Gladding McBean Lincoln Plant
Basis weight scanner	Raw material handling upgrade	Flue liner kiln	Roof tile modernization project
Reject separator	Ball mill	Brick exit kiln door project	Body pop-outs, glaze spalling
Centrifuge	Bulk bag handling system	Flue dryer/preheater	
Dryer bearing thermocouples	Stucco screen	Holding room improvements	
Dissolved air floatation unit	Vibrating screener	Ware cool system	
Stock ratio control	Zone 3 burner and gas train	H-Cutter reels	
Split top felt	Imp mill bag house fan	Monorail brick packaging system	
Plant expansion	Baghouse bags, cages, and Venturis		
VAT exhaust addition radial distributor feed with manual	Imp mill bag house		
Dilution control	Hazardous waste removal		

In addition to these projects, appellants also mention and/or discuss the following projects (among others) in their briefs:¹²

- PABCO Paper Vernon Plant: rewinder upgrade project; broke conveyor project; thickeners/decker replacement project; machine screen upgrade project; stock pressure loop project; 4th Section dryer drive project; machine drive improvement project

¹² The items described here are not the complete list of PCB's projects, as other projects are specifically discussed by the parties in the briefs and in this hearing summary.

- Gladding McBean Lincoln Plant: automation of the production line project
- Basalite Tracy Plant: vapor system project; burner installation project; palletizer project
- Basalite Dixon Plant: pallet turnover device project
- Unknown location: mold insertion device project

With their opening brief, appellants included a table of contents of the exhibits included with that brief. The exhibits included are the following:

Exhibit	Title
1	History/Pacific Coast Builders 50th Anniversary
2	List of PCB's Major California R&D Projects
3	Basis weight scanner AFE
4	Gladding McBean – Report on Body Pop-Outs and Glaze Spalling on Terra Cotta and Pottery
5	PCB Research and Development Credit Study Executive Summary
6	PCB Credit Calculations and Supporting Details, including Tax Returns
7	Selected Narrative Reports for Research and Development Projects and supporting documentation
8	FTB Request for Information – Response February 24, 2006
9	FTB Request for Information – Response May 26, 2006
10	FTB Request for Information – Plant Tour Schedule
11	FTB Request for Information – Vernon Response February 20, 2007
12	FTB Request for Information – Newark Response March 2, 2007
13	FTB Request for Information – Lincoln Response March 18, 2008
14	FTB Request for Information – November 3, 2008
15	FTB Determination for TYE 1999 January 31, 2006
16	FTB Final Determination for TYE 1999-2003 January 30, 2009 and Response April 3, 2009
17	Internal Revenue Service Request for Information November 21, 2007
18	Internal Revenue Service Determination April 30, 2009

In addition, with their reply brief, appellants included the following as exhibits:

Exhibit	Title
1	Schedule of R&D credits claimed
2	Alfred Mueller March 31, 2002 Executive Summary for PABCO Gypsum-Newark
3	Various letters from FTB
4	Basalite-Dixon Plant documents (3/31/1999-3/31/2004)
5	May 26, 2006 letter from PwC to FTB
6	Gerry Gunning March 31, 2001 Executive Summary for H.C. Muddox-Sacramento & Interstate Brick-West Jordan

1 ISSUE 1: Whether **appellant has presented evidence sufficient to establish that it conducted**
2 **activities that constituted “qualified research” as defined in IRC section 41.**

3 Applicable Law

4 R&TC section 23609 provides a tax credit for “qualified research expenses” determined
5 in accordance with IRC section 41, when a taxpayer established that it has conducted qualified research
6 as defined by IRC section 41(d). Generally, the credit is determined based on the amount by which the
7 taxpayer’s qualified research expenses exceed a “base amount.” Insofar as is relevant to this appeal,
8 R&TC section 23609 substantially conforms to IRC section 41.

9 For a taxpayer to establish that it conducted qualified research, IRC section 41(d)(1)
10 defines the term “qualified research” as “research”:

- 11 (A) with respect to which expenditures may be treated as expenses under section 174,
12 (B) which is undertaken for the purpose of discovering information –
13 (i) which is technological in nature, and
14 (ii) the application of which is intended to be useful in the development of a new or
15 improved business component of the taxpayer, and
16 (C) substantially all of the activities of which constitute elements of a process of
17 experimentation for a purpose described in paragraph (3) [which lists qualified purposes
18 as “(i) a new or improved function, (ii) performance, or (iii) reliability or quality”].”

16 More plainly, IRC section 41(d)(1) defines “qualified research” as follows:

- 17 (1) the research expenditures must qualify as expenses under IRC section 174 (Int.Rev.
18 Code, § 41(d)(1)(A));
19 (2) the research activity must be undertaken for the purpose of discovering information that
20 is technological in nature (Int.Rev. Code, § 41(d)(1)(B)(i));
21 (3) the research activity must be undertaken for the purpose of discovering information the
22 application of which is intended to be useful in the development of a new or improved
23 business component of the taxpayer (Int.Rev. Code, § 41(d)(1)(B)(ii)); and
24 (4) substantially all of the research activities must constitute elements of a process of
25 experimentation for a qualified purpose (Int.Rev. Code, § 41(d)(1)(C) & (d)(3)).

26 Treasury Regulation section 1.41-4(a)(3) provides in pertinent part that:

- 27 (i) Research is undertaken for the purpose of discovering information if it is intended to
28 eliminate uncertainty concerning the development or improvement of a business
component. Uncertainty exists if the information available to the taxpayer does not

1 establish the capability or method for developing or improving the business component,
2 or the appropriate design of the business component.

3 (ii) Application of the discovering information requirement. A determination that
4 research is undertaken for the purpose of discovering information that is technological in
5 nature does not require the taxpayer be seeking to obtain information that exceeds,
6 expands or refines the common knowledge of skilled professionals in the particular field
of science or engineering in which the taxpayer is performing the research. In addition, a
determination that research is undertaken for the purpose of discovering information that
is technological in nature does not require that the taxpayer succeed in developing a new
or improved business component.¹³

7 Treasury Regulation section 1.41-4(a)(5)(i) defines the “process of experimentation” in
8 relevant part as “a process designed to evaluate one or more alternatives to achieve a result where the
9 capability or the method of achieving that result, or the appropriate design of that result, is uncertain as
10 of the beginning of the taxpayer’s research activities.”¹⁴ The Court of Appeals for the Fifth Circuit has
11 described the “process of experimentation” as involving three steps:

- 12 (1) the identification of uncertainty concerning the development or improvement of a
13 business component,
14 (2) the identification of one or more alternatives intended to eliminate that uncertainty,
and
15 (3) the identification and the conduct of a process of evaluating the alternatives (through,
16 for example, modeling, simulation, or a systematic trial and error methodology).

17 ¹³ Although the current regulation provides that it is applicable to tax years after December 31, 2003, the regulation was
18 adopted, in relevant part, as a proposed regulation on December 26, 2001, and the IRS then stated that it would not challenge
19 return positions that were consistent with the proposed regulation. (66 Fed. Reg. 247, p. 66367 (Dec. 26, 2001).) The
20 regulation discarded the IRS’s prior formulation of the applicable rule, which required that a taxpayer undertake to obtain
knowledge that exceeds or refines the knowledge of skilled professionals in the field of science or engineering. Staff notes
that *United Stationers, Inc. v. U.S.* (7th Cir. 1998) 163 F.3d 440, appeared to adopt a more stringent form of the “discovery”
requirement than set forth in the current regulation by requiring that qualifying research “go beyond the current state of
knowledge in [the] field [or] expand or refine its principles.” (*United Stationers v. U.S.*, supra, at p. 445.)

21 ¹⁴ Treasury Regulation section 1.41-4(a)(5)(i) provides:

22 Process of experimentation (i) In general. For purposes of section 41(d) and this section, a process of
23 experimentation is a process designed to evaluate one or more alternatives to achieve a result where the capability or
24 the method of achieving that result, or the appropriate design of that result, is uncertain as of the beginning of the
taxpayer’s research activities. A process of experimentation must fundamentally rely on the principles of the
25 physical or biological sciences, engineering, or computer science and involves the identification of uncertainty
concerning the development or improvement of a business component, the identification of one or more alternatives
26 intended to eliminate that uncertainty, and the identification and the conduct of a process of evaluating the
alternatives (through, for example, modeling, simulation, or a systematic trial and error methodology). A process of
experimentation must be an evaluative process and generally should be capable of evaluating more than one
27 alternative. A taxpayer may undertake a process of experimentation if there is no uncertainty concerning the
taxpayer’s capability or method of achieving the desired result so long as the appropriate design of the desired result
is uncertain as of the beginning of the taxpayer’s research activities. Uncertainty concerning the development or
28 improvement of the business component (e.g., its appropriate design) does not establish that all activities undertaken
to achieve that new or improved business component constitute a process of experimentation.

1 (*United States v. McFerrin (McFerrin)* (5th Cir. 2009) 570 F.3d 672, 677.)

2 In addition, Treasury Regulation section 1.41-4(a)(5)(ii) describes a “qualified purpose”
3 of a process of experimentation as relating to “a new or improved function, performance, reliability or
4 quality of the business component. Research will not be treated as conducted for a qualified purpose if
5 it relates to style, taste, cosmetic, or seasonal design factors.”

6 IRC section 41(d)(2) provides that the test for qualified research shall be applied
7 separately with respect to each “business component” of the taxpayer, and defines “business
8 component” as “any product, process, technique, formula, or invention which is to be held for sale, lease
9 or license, or used by the taxpayer in a trade or business of the taxpayer.” (Int.Rev. Code, § 41(d)(2)(A)
10 & (B).)

11 IRC section 41(d)(4) excludes the following activities (among others) from the definition
12 of “qualified research” (and thus provides that such activities will not be eligible for the credit):

13 (D) Surveys, studies, etc.

14 Any -

- 15 (i) efficiency survey,
16 (ii) activity relating to management function or technique,
17 (iii) market research, testing, or development (including advertising or promotions),
18 (iv) routine data collection, or
19 (iv) routine or ordinary testing or inspection for quality control. . . .”

20 * * *

21 (H) Funded research. Any research to the extent funded by any grant, contract, or
22 otherwise by another person (or governmental entity).

23 IRC section 41(d)(1)(A) provides that, in addition to meeting the requirements set forth in
24 IRC section 41 itself, a taxpayer seeking the research credit must also comply with the requirements of
25 IRC section 174, which provides a deduction for “research or experimental expenditures.” Treasury
26 Regulation section 1.174-2(a)(1) provides that, to fall within the definition of “research or experimental
27 expenditures,” expenses must represent “research and development costs in the experimental or
28 laboratory sense.” Treasury Regulation section 1.174-2(a)(1) further explains as follows:

Expenditures represent research and development costs in the experimental or laboratory
sense if they are for activities intended to discover information that would eliminate
uncertainty concerning the development or improvement of a product. Uncertainty exists
if the information available to the taxpayer does not establish the capability or method for
developing or improving the product or the appropriate design of the product. Whether
expenditures qualify as research or experimental expenditures depends on the nature of
the activity to which the expenditures relate, not the nature of the product or

1 improvement being developed or the level of technological advancement the product or
2 improvement represents.

3 One scholarly commentator has noted that for purposes of IRC section 174:

4 The term “uncertainty” must be limited to technological or scientific uncertainty in that a
5 taxpayer must be uncertain as to whether it will be able to develop or improve its product
6 in the scientific or laboratory sense. Put differently, the taxpayer must be uncertain as to
7 whether it will be able to achieve its product development objective through its research
8 activities. Conversely, uncertainty attributable to business or market concerns is not
9 determinative of the existence of research and experimentation for purposes of section
10 174.¹⁵

11 In this process, the taxpayer is required to “identify the uncertainty”, “identify one or
12 more alternatives”, and “identify and conduct a process of evaluating the alternatives.” The IRS audit
13 manual explains as follows:

14 The key difference regarding ‘uncertainty’ in sections 41 and 174 is that, under section
15 41, uncertainty must relate to a qualified purpose, and must be resolved through a 3-
16 element process of experimentation, fundamentally relying on the principles of the hard
17 sciences, engineering, or computer science. The regulations clarify that merely
18 demonstrating that uncertainty has been eliminated is insufficient... Focus on developing
19 facts necessary to determine whether the taxpayer’s activities meet these requirements
20 and the core elements.

21 Treasury Regulation section 1.174-2(a)(3) further provides that the term “research or experimental
22 expenditures” does not include expenditures for, among other things, quality control testing, surveys, or
23 advertising.

24 In *United States v. McFerrin*, 2007 U.S. Dist. LEXIS 91022, the taxpayers’ R&D credit
25 study was the basis of the claim for an R&D tax credit by the taxpayers and their companies. The
26 federal district court found that the IRS “proved convincingly” that the R&D tax credit consultant’s
27 work and resulting report were “fundamentally flawed and unreliable” and “entitled to no weight.” The
28 court described the consultant’s methods as “staff conducting superficial on-site meetings with
personnel from [the taxpayers’ companies], and reviewing various records of the companies.” The
court noted that there was no evidence that the consultant had “anyone with meaningful scientific
experience or training on staff, or that skilled or knowledgeable individuals conducted the study, did
any investigation, or rendered conclusions.” Finally, the court noted that the consultant did not define

¹⁵ Cameron, Research Tax Credit: Statutory Construction, Regulatory Interpretation and Policy Incoherence (2004) 9 Comp. L. Rev. & Tech. J. 63.

1 “research” for purposes of the R&D credit in its interviews with the employees so that each employee’s
2 answers reflected that employee’s own interpretation of what qualified as “research.”

3 The district court bifurcated the test for determining whether the activities constituted
4 “qualified research” as meeting both the discovering information requirement and the process of
5 experimentation requirement. The district court articulated the standard for “discovering information
6 technological in nature [as] research undertaken to discover information that goes beyond the current
7 state of knowledge in the field” and the court held that appellants failed to meet that standard.

8 On appeal, the Court of Appeals (*McFerrin, supra*) held that the district court applied
9 the wrong standard for discovering information. The court noted that even though the 2003 Treasury
10 Regulations were not in effect when the amended returns were filed, the taxpayers had clearly been
11 relying on the proposed regulations which defined the discovering information standard as “eliminating
12 uncertainty”, and which was similar to the definition that was ultimately adopted. Additionally, the
13 court noted that the IRS conceded the taxpayers could rely on the definitions from the 2003 regulations.
14 Therefore, the Court of Appeals held that the district court erred by not reviewing the evidence under
15 the definitions from the 2003 Treasury Regulations. (*McFerrin, supra*, 570 F.3d 672, 678.)

16 In 2005 and 2008, the IRS issued public website¹⁶ audit manuals for auditing IRC section
17 41 claims, including claims predicated on prepackaged credit studies. Since R&TC section 23609
18 expressly incorporates IRC section 41, except for the express modifications not relevant to this appeal,
19 the analysis of IRC section 41 in these IRS audit manuals is relevant to interpreting California R&D
20 credits. The 2008 IRS publication, entitled “Research Credit Claims Audit Techniques Guide
21 (RCCATG): Credit for Increasing Research Activities § 41” (published May 2008)¹⁷ (hereafter referred
22 to as “the 2008 IRS Audit Techniques Guide”)¹⁸ states as follows:

23 There is a growing trend among taxpayers, and their representatives, to submit
24 prepackaged material to support research credit claims. These submissions are usually

25 ¹⁶ These manuals are available at www.irs.gov.

26 ¹⁷ <http://www.irs.gov/businesses/article/0,,id=183208,00.html>

27 ¹⁸ This publication cannot be cited as precedent, or relied upon as evidence of the IRS’s official legal position, however the
28 parties appear to agree that it provides useful context and insight regarding R&D audit issues. The publication states: “This document is not an official pronouncement of the law or the position of the Service and cannot be used, or cited or relied upon as such.”

delivered to examiners in multiple binders. While the submissions often set forth the methodology employed in preparing the research credit claim, the submissions frequently fail to substantiate that the taxpayer paid or incurred qualified research expenses (“QREs”) as claimed. In addition, audits may have been restricted to evaluating the taxpayer’s methodology for capturing QREs found in the prepackaged submission, as opposed to examining the research credit claimed on the amended return.

Contentions

Appellants’ Opening Brief

Appellants assert that respondent’s denial of PCB’s R&D claim is contrary to both state and federal law, as PCB conducted qualified research activities and provided sufficient documentation to substantiate that its activities satisfied the requirements for the R&D tax credit and that it is entitled to 100 percent of the credits claimed. Moreover, appellants assert that respondent incorrectly denied PCB’s claimed R&D credits without setting forth a reasonable basis or explanation for its determination or rebutting the signed surveys of PCB’s executive personnel. (App. Opening Br., p. 15.)

Appellants state the PCB is a vertically-integrated building products company that sells building products for residential, commercial, and industrial construction to builders and contractors and that PCB’s distribution, manufacturing, contracting, and transportation businesses are organized into wholly-owned subsidiaries or limited liability companies each with their own officers and board of directors. Appellants assert that, as independent units, PCB’s subsidiaries can respond quickly to changes in technology, processes, and markets in their respective business arena, honing their own operating efficiencies. (App. Opening Br., pp. 2-3.)

Appellants highlight PCB’s two main manufacturing subsidiaries, PABCO Building Products, LLC and Basalite Concrete Products, LLC (Basalite). Appellants state that PABCO Building Products, LLC manufactures building products such as gypsum wallboard, asphalt roofing products, clay pipe, terra cotta, bricks, and other clay products and has four manufacturing businesses¹⁹ in California (PABCO Gypsum, PABCO Paper, Gladding McBean, and H.C. Muddox) which appellants describe as follows (App. Opening Br., pp. 3-4):

- PABCO Gypsum, appellants assert, is a leading manufacturer of wallboard, with plants located

¹⁹ As mentioned above, we speculate that, perhaps, PABCO Clay Products, LLC came into existences after the filing of appellants’ opening brief.

1 in Las Vegas, Nevada, and Newark, California. Appellants contend that R&D projects
2 conducted at the Newark facility during tax years 1999 through 2003 include the ball mill
3 project, the raw materials handling upgrade project, the bulk bag handling system, and the Zone
4 3 burner system upgrade project. (App. Opening Br., p. 4.)

- 5 • PABCO Paper, appellants assert, is a manufacturer of paper for wallboard, supplying the paper
6 for PABCO Gypsum, and also produces folding carton grades, tube stock, and plain and setup
7 box cartons. Appellants contend that the R&D projects conducted at the Vernon, California
8 facility during tax years 1999 through 2003 include the rewinder upgrade project, broke
9 conveyor project, thickeners/deckers replacement project and machine screen upgrade project,
10 stock pressure loop project, basis weight scanner project, centrifuge project, reject separator
11 project, 4th Section dryer drive project, dryer thermocouples project, and machine drive
12 improvement project. (App. Opening Br., pp. 4-5.)
- 13 • Gladding McBean, appellants assert, is a manufacturer of clay products, producing vitrified
14 (ceramic) clay pipe, architectural terra cotta, clay roof tile, and glazed terra cotta pottery.
15 Appellants contend that the R&D projects conducted at the Lincoln, California facility during tax
16 years 1999 through 2003 include the automation of the production line and the body pop-
17 outs/glaze spalling project. (App. Opening Br., p. 5.)
- 18 • H.C. Muddox, appellants assert, is a manufacturer of clay products such as face brick, thin brick,
19 flue liners, pavers, pool coping, structural brick, and raw ceramic clays. Appellants contend that
20 the R&D projects conducted at the Sacramento and Ione, California facilities during tax years
21 1999 through 2003 include the kiln renovation project, the brick exit kiln door project, and
22 improvements to the existing holding room. (App. Opening Br., pp. 5-6.)

23 Appellants state that Basalite is a concrete products manufacturer, manufacturing
24 concrete structural block, garden products, fencing and retaining wall systems, and interlocking pavers.
25 Appellants contend that the R&D projects conducted at its California facilities during tax years 1999
26 through 2003 include the Tracy burner installation project, the second palletizer project, and the Dixon
27 pallet turnover device project. (App. Opening Br., p. 6.)

28 Appellants contend that PCB's research efforts can be classified into two categories,

1 process improvement and product development, both of which qualify for the R&D credit.²⁰ As for
2 process improvement, appellants argue that PCB conducted R&D activities regarding experimental
3 manufacturing processes and improvements with an application towards PCB's business to increase
4 PCB's ability to develop innovative products that met marketplace demand and to increase PCB's
5 overall manufacturing efficiency. As for product development, appellants argue that PCB conducted
6 R&D activities to develop new, or to improve existing, products for the building industry. (App.
7 Opening Br., pp. 6-7.)

8 As for examples of process improvement, appellants identified the following projects
9 (App. Opening Br., p. 7):

- 10 • Basis weight scanner project (at the PABCO Paper Vernon plant): Appellants assert that PCB
11 aimed to reduce variations in the manufacturing process and output product at this plant by
12 upgrading equipment and systems for basis weight reduction, to control the weight on the
13 machine. Appellants state that PCB incorporated a stock pressure loop to control the stock flow
14 to the machine and then incorporated a basis weight scanner to continually measure the paper
15 basis weight. Appellants contend that, once the basis weight scanner was properly integrated,
16 plant personnel gained the ability to measure the sheet basis weight in real-time and send
17 feedback to the stock pressure loop control valves which helped to reduce the machine direction
18 weight variation and improve the basis weight control. (App. Opening Br., pp. 7-8.)
- 19 • Palletizer project (at the Basalite Tracy plant): Appellants assert that PCB undertook this project
20 to incorporate an automated palletizing system into the existing production line at its Basalite
21 concrete plant, which sped up the stacking of bags from four bags per minute to 28 bags per
22 minute. Appellant contend that a substantial amount of time went into designing, customizing,
23 and setting the specifications for the equipment with the manufacturer and planning for the
24 integration of the equipment into the existing production process. (App. Opening Br., p. 8.)
- 25 • Vapor system project (at the Basalite Tracy plant): Appellants assert that this project at the
26 Basalite concrete plant was aimed at accelerating the process of product curing as it was difficult
27

28 ²⁰ See Exhibit 2 to appellants' opening brief for a list of PCB's major R&D activities during the tax years at issue.

1 for PCB to predict product drying times. Appellants contend that the purpose of integrating the
2 new equipment was to keep variables more consistent and to compensate for the most optimal
3 drying environment. (App. Opening Br., pp. 8-9.)

4 As for an example of product development, appellants identified the pop outs and glaze
5 spalling project (the “pop-out” project). Appellants state that, at the Gladding McBean plant, a project
6 was conducted to eliminate glazing defects associated with body pop-outs and glaze spalling on garden
7 and terra cotta pottery. Appellants state that Gladding McBean laboratory technicians and glaze
8 operations personnel performed factory trials to identify the cause of these flaws and to devise a solution
9 to minimize the frequency of such defects, conducting tests at the plant and at offsite laboratories. After
10 attempting various remedies, and after additional onsite and offsite testing and experimentation with
11 numerous raw material mixtures, appellants assert that Gladding McBean personnel introduced a new
12 ceramic grade product to the mixture to provide a solution to the problem. (App. Opening Br., pp. 9-
13 10.)

14 Appellants state that PCB engaged (PwC) to conduct an R&D study of its operations for
15 the 1999 through 2005 tax years.²¹ Appellants assert that this study documented PCB’s qualifying
16 research activities and qualifying research expenses by using the following established methodology: (1)
17 PwC and PCB gathered and reviewed contemporaneous records and available documentation regarding
18 potentially qualified PCB activities and expenses related to manufacturing process improvements and
19 project development; (2) PwC gathered PCB employees from various PCB subsidiaries and PwC
20 reviewed, for the PCB staff gathered, what constituted “qualified research”, “qualified services”, and
21 “qualified research expenses” as defined in IRC section 41 and IRC section 174; and (3) in the course of
22 conducting interviews and gathering and analyzing documentation, PwC and PCB identified specific
23

24 ²¹ Appellants state that the study is documented in a series of binders beginning with an executive summary binder (App.
25 Opening Br., exhibit 6), which describes the overall methodology of the study, summarizes the identified qualified research
26 expenses and resulting tax credits, and provides a table of contents of the study. Appellants state that the study includes a
27 series of cost accumulation binders for each year, which include a summary qualified research expense report which
28 summarizes qualified wages, supplies, and contract research expenses for each subsidiary. Appellants also state that the
study includes information and contemporaneous documentation in the form of authorization for fund requests and reports
which document the reasons for the development of new processes related to a representative sample of PBC’s qualified
activities. Finally, appellants state that the study includes, for a number of sample projects, qualified research narratives
which describe in detail R&D projects related to process and product improvements and R&D project objectives. (App.
Opening Br., pp. 12-13.)

1 categories of activities that PCB performed which qualified for the R&D credit. (App. Opening Br.,
2 p. 10.)

3 Appellants state that the following activities were identified (App. Opening Br.,
4 pp. 10-11): (a) designing the manufacturing line; (b) testing and selecting different machine alternatives;
5 (c) designing the building/plumbing/vacuum systems around the machines; (d) developing other
6 manufacture process enhancements; (e) developing software for internal use purposes; (f) developing
7 new corrugated combinations or other products; (g) product and process audits; (h) in-process quality
8 checks; (i) statistical process control; (j) determining product specifications; (k) direct support of people
9 who perform research; (l) technical meetings; and (m) improvement change requests relating to products
10 and processes. Appellants state that, once PCB's qualified activities were identified, PwC and PCB
11 identified the wages, supplies, and contract research expenditures which comprised the components of
12 PCB's qualified research expenses. (App. Opening Br., pp. 10-11.)

13 Appellants argue that R&TC section 23609 conforms to IRC section 41, and the
14 associated Treasury regulations, and that federal case law provides guidance for the proper
15 determination of the California R&D tax credit. Appellants state that the requirements for the R&D
16 credit for qualified activities are the following (as found in IRC section 41(d)):

- 17 (1) research expenditures must qualify as expenses under IRC section 174 (the Section 174
18 Test) (Int.Rev. Code, § 41(d)(1)(A));
- 19 (2) research must be undertaken for the purpose of discovering information that is
20 technological in nature (the Technological in Nature Test) (Int.Rev. Code,
21 § 41(d)(1)(B)(i));
- 22 (3) research must be undertaken for the purpose of discovering information the application of
23 which is intended to be useful in the development of new or improved functionality,
24 performance, reliability, or quality of a new or improved business component of the
25 taxpayer (the Business Component Test) (Int.Rev. Code, § 41(d)(1)(B)(ii)); and
- 26 (4) substantially all of the activities which constitute elements of a process of
27 experimentation must relate to a new or improved function, performance, reliability, or
28 quality of the business component of the taxpayer (the Process of Experimentation Test)

1 (Int.Rev. Code, § 41(d)(1)(C) & (d)(3)).

2 Appellants contend that, if a taxpayer meets all four parts of this test, the R&D credit is determined on
3 the amount that the taxpayer's qualified research expenses exceed a base amount and that the taxpayer's
4 qualified research expenses are calculated based on qualified wages, qualified supplies expense, and
5 contract research expenditures. (Int.Rev. Code, § 41 (a) & (c).) Appellants argue that PCB conducted
6 many R&D projects during the tax years at issue at its various facilities and that the projects vary in
7 purpose and result. Appellants emphasize, however, that these projects demonstrate that the four-part
8 test above was met by PCB. (App. Opening Br., pp. 15-16.)

9 Regarding the Section 174 Test, appellants contend that research expenditures
10 must qualify as expenses under IRC section 174, which generally allows a current deduction for research
11 and experimental expenditures paid or incurred by a taxpayer in connection with the operation of a trade
12 or business. Appellants further contend that the phrase "research and experimental" in IRC section 174
13 is defined in the applicable regulations (Treas. Reg. § 1.174-2(a)(1)) which provide that expenditures
14 represent research and development costs "in the experimental or laboratory sense." Here, appellants
15 assert that the expenditures reported by PCB clearly qualify under IRC section 174 because the expenses
16 included wages, supplies, and contract research expenses incurred by PCB while PCB was researching
17 and developing new manufacturing processes and products. (App. Opening Br., pp. 16-17.)

18 Regarding the Technological in Nature Test, appellants argue that this test requires
19 research to be undertaken for the purpose of discovering information that is technological in nature and
20 that the test is intended to limit the form of discovery to the "process of experimentation." (Int.Rev.
21 Code, § 41(d)(1)(C); Treas. Reg. § 1.41-4(a)(5)(i).) Here, appellants assert that PCB's activities met the
22 requirements of this test because PCB's research fundamentally relied upon principles of materials
23 science and mechanical and structural engineering and the research was applied to PCB's manufacturing
24 processes and products. (App. Opening Br., pp. 17-18.)

25 Appellants contend that uncertainty existed prior to when PCB began its commercial
26 production of projects because the information available to PCB did not establish the capability, method,
27 or appropriate design for commercially producing the projects. For example, appellants assert that, at
28 the Gladding McBean Lincoln facility, PCB personnel encountered various challenges during the

1 research and development of the terra cotta and garden pottery line, as mentioned above. Appellants
2 contend that Gladding McBean personnel undertook in-depth experimentation, including laboratory and
3 factory testing to identify the contaminated material after determining that the pottery molds and
4 wedging surfaces were not responsible for the defects. Appellants assert that false negatives and
5 inconsistent results led to added uncertainty, a reconsideration of potential material sources and
6 investigative modes, and a thorough examination of the production facility in order for Gladding
7 McBean personnel to reach a final conclusion. (App. Opening Br., pp. 17-18.)

8 Appellants also assert that there was uncertainty regarding the outcome of some of PCB's
9 projects as, in some instances such as integrating the vapor system at the Basalite Tracy facility, PCB
10 could not and did not create a successful improved process of production. Appellants state that
11 employees faced a number of obstacles with that project as high calcium levels in the water clogged
12 pipes but the use of a softener in the water remedied that problem but resulted in the layering of
13 efflorescence on the masonry materials produced. Appellants assert that, after unsuccessful attempts to
14 solve this secondary problem (i.e., the efflorescence on the masonry materials), a new kiln and water
15 softening system was ultimately integrated into the plant. (App. Opening Br., pp. 18-19.)

16 Regarding the Business Component Test, appellants contend that this test requires that
17 the research be undertaken for the purpose of discovering information, the application of which is
18 intended to be useful in the development of a new or improved business component of the taxpayer and
19 that a qualifying business component includes both new or improved products and new or improved
20 manufacturing processes. (Int.Rev. Code, § 41(d); Treas. Reg. § 1.41-4.) (App. Opening Br.,
21 pp. 19-20.)

22 Appellants cite Example 3 of Treasury Regulation section 1.41-4(a)(8) as an example of
23 qualifying manufacturing process research:

24 Example 3. (i) Facts. X is engaged in the business of manufacturing food products and
25 currently manufactures a large-shred version of a product. X seeks to modify its current
26 production line to permit it to manufacture both a large-shred version and a fine-shred
27 version of one of its food products. A smaller, thinner shredding blade capable of
28 producing a fine-shred version of the food product, however, is not commercially
available. Thus, X must develop a new shredding blade that can be fitted onto its current
production line. X is uncertain concerning the design of the new shredding blade,
because the material used in its existing blade breaks when machined into smaller,
thinner blades. X engages in a systematic trial and error process of analyzing various
blade designs and materials to determine whether the new shredding blade must be

1 constructed of a different material from that of its existing shredding blade and, if so,
2 what material will best meet X's functional requirements.

3 (ii) Conclusion. X's activities to modify its current production line by developing the
4 new shredding blade meet the requirements of qualified research as set forth in paragraph
5 (a)(2) of this section. Substantially all of X's activities constitute elements of a process
6 of experimentation because X evaluated alternatives to achieve a result where the method
7 of achieving that result, and the appropriate design of that result, were uncertain as of the
beginning of the taxpayer's research activities. X identified uncertainties related to the
development of a business component, and identified alternatives intended to eliminate
these uncertainties. Furthermore, X's process of evaluating identified alternatives was
technological in nature, and was undertaken to eliminate the uncertainties.

8 Appellant assert that Example 3 demonstrates that both new or improved product development research
9 and new or improved manufacturing process research can qualify for the R&D credit. (App. Opening
10 Br., p. 20.)

11 As for an example of PCB's projects, appellants contend that the Basalite Tracy facility
12 undertook the palletizer project, as mentioned above, to incorporate an automated palletizing system into
13 the existing production line. Appellants state that, prior to the incorporation of this system at that
14 facility, dry mix bags were hand-stacked at a rate of 10 bags per minute but then stacked at a rate of 28
15 bags per minute mechanically. Appellants contend that facility personnel encountered a number of
16 challenges during the design and installation of the palletizing system such as working with the
17 equipment manufacturer to design and program customized bag patterns and parameters into the system
18 and the incorporation of a "drawbridge-like" conveyor to allow for the simultaneous movement of
19 products in multiple directions. (App. Opening Br., p. 20.)

20 Regarding the Process of Experimentation Test, appellants contend that this test requires
21 that, at the outset, uncertainty exists regarding the ability to develop a project in the scientific or
22 laboratory sense. (Treas. Reg. § 1.41-4(a)(5)(i).) Further, appellants contend that this test focuses on
23 eliminating uncertainty regarding the capability, method, or appropriate design needed to successfully
24 develop a product, as opposed to uncertainty as to whether the product can be developed within certain
25 business or economic constraints. (*Id.*) Finally, appellants argue that testing activities are part of the
26 process of experimentation but that "routine or ordinary testing or inspection for quality control" is not a
27 valid type of testing for purposes of the credit. (Int.Rev. Code, § 41(d)(4)(D)(v).) (App. Opening Br.,
28 p. 21.)

Appellants contend that, consistent with the testing requirements of IRC section 41(d)(4), the testing conducted by PCB was completed to prove that component designs were appropriate and satisfied specific design specifications and that the testing was required because of the uncertainty that existed regarding the capability or method for developing or improving the business component or the appropriate design of the business component. Appellants assert that PCB was successful by conducting systematic trial and error experiments to evaluate and adjust numerous designs depending on test results and brainstorming discussions such that PCB's testing qualified as research for purposes of the R&D credit because the testing was required to determine whether a design met its desired objectives. As an example, appellants argue that, in the process improvement representative project, there were a number of steps from the time that the addition of the basis weight scanner was proposed to the point in which the new equipment was fully functional in the manufacturing line (i.e., technical discussions as to how to achieve the targeted goal of basis weight reduction and the type of equipment and manufacturer best suited for the needs of the plant). Appellants next assert that, after the incorporation of the basis weight scanner into the production line, the system needed to be calibrated, trial runs were performed to ensure the accuracy of readings on the scanner, and further testing was performed to maximize the accuracy of the basis weight readings. Moreover, appellants assert that normal production at the facility was put on hold during the testing phase of the machinery. (App. Opening Br., pp. 21-22.)

Respondent's Opening Brief

Respondent asserts, citing *Eustace v. Commissioner (Eustace)* (2001) 81 T.C.M. (CCH) 1370, *Efrem v. Fudim (Fudim)* (1994) 67 T.C.M. (CCH) 3011, *Union Carbide v. Commissioner (Union Carbide)* (2009) 97 T.C.M. 1207, and *McFerrin, supra*, that, as appellant PCB is the keeper of its records, it is appellants' burden to prove entitlement to the claimed R&D tax credits, as taxpayers are required to keep sufficient records to substantiate deductions and credits.²² Respondent states, to claim the R&D credit, a taxpayer must first determine whether any of its activities constitute "qualified research" as defined in IRC section 41(d) and then determine which costs attributable to the qualified research constitute "qualified research expenses" under IRC section 41(b). (Resp. Opening Brief, p. 2.)

²² Board staff notes that *Eustace*, *Fudim*, *Union Carbide*, as well as *McFerrin*, are discussed in the Applicable Law section of Issue 2 below.

Respondent consequently asserts that the application of IRC section 41 can be broken out into three steps: (1) Step 1 – taxpayers must prove “qualified research” with research documentation (pursuant to IRC section 41(d)); (2) Step 2 – taxpayers must prove “qualified research expenses” with accounting records which show a nexus to the Step 1 qualified research (pursuant to IRC section 41(b)); and (3) Step 3 – taxpayers must prove their base amount and fixed-base percentage with historical qualified research documentation and accounting records (pursuant to IRC section 41(c)). Respondent contends that if a taxpayer can prove Step 1, then the analysis moves on to proving Step 2. Respondent argues that Step 1 is a threshold issue, in that a taxpayer must satisfy Step 1 prior to an evaluation of Step 2. Consequently, respondent argues that, it is not enough for a taxpayer to make the claim that it engaged in “qualified research” activities; instead, the taxpayer must substantiate this claim, such that no shortcuts, estimates, or assumptions are allowed to prove Step 1. Respondent asserts that a taxpayer must retain records to substantiate that it engaged in “qualified research”, complying with the requirements of IRC section 41(d)(1), such that a taxpayer must prove Step 1 with research documentation. Respondent concludes that, once a taxpayer has proven Step 1 and Step 2, the analysis can proceed to Step 3. (Resp. Opening Brief, pp. 2-3.)

Respondent states that Step 1 is a four-part test, as IRC section 41(d) requires that:

- (1) the activity must qualify for IRC section 174 (Int.Rev. Code, § 41(d)(1)(A));
- (2) the activity must be technological in nature (Int.Rev. Code, § 41(d)(1)(B)(i));
- (3) taxpayers must identify the discrete business components (i.e., those products or processes) for which they claim the credit (Int.Rev. Code, § 41(d)(1)(B)(ii)); and
- (4) substantially all of the activity must involve a process of experimentation for a qualified purpose (Int.Rev. Code, § 41(d)(1)(C) & (d)(3)).

Respondent asserts that, if any of these four requirements are not satisfied, the claimed activity fails the four-part test and the activity is not to be deemed “qualified research” and the taxpayer cannot claim the R&D credit. (Resp. Opening Brief, pp. 3-4.)

As for the IRC section 174 Expense Test, respondent contends that, to meet the requirements of IRC section 174, the research must be made in connection with the taxpayer’s trade or business and must represent research and development costs in the experimental or laboratory sense. As

1 for the Technological in Nature Test, respondent contends that the process of experimentation used must
2 fundamentally rely on the principles of the physical or biological sciences, or engineering or computer
3 science. (Resp. Opening Brief, p. 4.)

4 As for the Business Component of the Taxpayer Test, respondent asserts that a taxpayer
5 must intend that the information to be discovered by the research will be useful in the development of a
6 new or improved business component of the taxpayer and that a “business component” is any product,
7 process, computer software, technique, formula, or invention held for sale in the taxpayer’s trade or
8 business. Respondent argues that, for each project claimed, a taxpayer’s discrete business component
9 must be identified and that the requirements of Step 1 must be separately applied for each business
10 component of the taxpayer and the overall “business component” must be narrowed to the point where
11 all elements satisfy IRC section 41(d)(1) and the applicable regulation (Treas. Reg. § 1.41-4(a)(2)).
12 (Resp. Opening Brief, p. 4.)

13 As for the Process of Experimentation Test, respondent asserts that this test has three
14 elements: (1) substantially all of the research activities must constitute (2) elements of a process of
15 experimentation (3) for a qualified purpose, such that this test requires a scientific method of
16 experimentation, not merely taking steps to resolve uncertainty or to improve a product. Respondent
17 states that, to satisfy the test, a taxpayer should develop a hypothesis as to how a new alternative might
18 be used to develop a business component, test that hypothesis in a scientific matter, analyze the results
19 of the test, and then either refine the hypothesis or discard it and develop a new hypothesis and repeat
20 the previous steps. (Resp. Opening Brief, p. 5.)

21 Respondent next compares the Process of Experimentation Test to the Technological in
22 Nature Test and expresses concern about how these two concepts at a manufacturing plant appear to be
23 similar. Respondent asserts that a factory with operating machines does not involve “qualified research”
24 if there is no corresponding process of experimentation as this element excludes: activities occurring
25 after commercial production, the adaptation of an existing business component, and engaging in routine
26 quality control. Respondent argues that the process of experimentation test is not satisfied just because a
27 taxpayer takes steps to improve a business component nor is the process of experimentation test satisfied
28 just because the activity used machines or computers and appears to be technological in nature. (Resp.

1 Opening Brief, pp. 5-6.)

2 Respondent states, citing Treasury Regulation section 1.41-4(d), that a taxpayer who is
3 claiming the R&D credit under IRC section 41 must retain records in sufficiently usable form and detail
4 to substantiate the expenditures claimed are eligible for the credit. Respondent argues that a taxpayer
5 has different types of records and that a considerable difference exists between research documents and
6 accounting documents. Respondent emphasizes that, if a taxpayer actually engages in research, then
7 there are research documents and there are accounting documents. Respondent asserts that, at Step 1,
8 research documents are required to prove qualified research and those same documents may help to
9 prove related expenses under Step 2. However, respondent argues that the converse is not true, in that
10 Step 2 accounting documents generated by paid consultants years after the fact do not prove that
11 qualified research occurred at Step 1. At the same time, respondent contends that Step 1 has no relation
12 to “costing” or “costing estimates” and that, at the Step 1 stage of an audit, respondent is only looking
13 for documents which prove that qualified research occurred. (Resp. Opening Brief, pp. 6-7.)

14 Respondent asserts that a prepackaged credit study, like the one submitted in support of
15 the credits claimed in this appeal by appellant PCB, consists entirely of “costing” and “costing
16 estimates” (or, in other words, accounting documents). Respondent argues that a credit study that
17 consists of recreated Step 2 accounting documents, without Step 1 research documents, does not prove
18 entitlement to the R&D tax credit. Respondent contends that, by submitting Step 2 documents in an
19 attempt to prove Step 1 activity, appellant PCB provided respondent with nothing but an assumption.
20 Respondent contends that, by submitting a prepackaged credit study, appellant PCB makes an
21 assumption that research occurred and then generates and submits hundreds of non-contemporaneous
22 accounting documents of alleged “costing”, skipping Step 1. Respondent argues that appellant PCB
23 focuses the attention on Step 2 accounting documents which consist of high-level estimates that are
24 unsupported by any actual research when such accounting documents do not prove that qualified
25 research occurred. (Resp. Opening Br., p. 7.)

26 Respondent also contends that a prepackaged credit study, like the one submitted by
27 appellant PCB, also contains “so-called” project narratives generated by appellant PCB or its
28 representatives and that such documents are Step 2, non-contemporaneous, recreated accounting

1 documents that are reconstructions of activities that are not research. For example, respondent argues
2 that the purchase of a commercially-available machine, and using the machine for its intended purpose,
3 is not qualified research. Respondent argues that “Authorization for Funds” memoranda, while
4 contemporaneous, are not Step 1 research documents but merely show that a taxpayer made a request to
5 purchase equipment, but are not proof of research. Respondent asserts that it cannot be assumed that
6 appellant PCB engaged in research and that it is appropriate to review its costing estimates, because
7 appellant PCB’s underlying projects have nothing to do with qualified research. (Resp. Opening Br.,
8 p. 7.)

9 Respondent reiterates, citing R&TC section 41(d), that taxpayers must prove “qualified
10 research” with research documentation and asserts that, in this matter, PCB only provided
11 documentation that qualified research took place at one of its facilities—the Gladding McBean plant in
12 Lincoln. (Resp. Opening Br., p. 11.)

13 Respondent states that this facility is a pottery factory that makes pottery, roof tiles,
14 sewer pipes, and ornamental and functional terra cotta pieces for building exteriors. Respondent asserts
15 (citing IRC section 41(d)(3)(B)) that terra cotta production is not qualified research, as terra cotta
16 sculpting is not a qualified activity, as it relates to style, taste, color, or seasonal design factors.
17 Respondent also asserts (citing IRC section 41(d)(4)) that this activity is specifically excluded as after
18 commercial production, an adaptation of existing business components, a duplication of existing
19 business components, and as research in the social sciences, arts, or humanities. Respondent contends
20 that the everyday activities at the Gladding McBean facility, as well as at PCB’s other facilities (i.e.,
21 Vernon, Newark, Basalite, and H.C. Muddox) do not qualify for the R&D credit. (Resp. Opening Br.,
22 p. 11.)

23 Despite this, respondent asserts that it did find a PCB project (the “pop-out” project at the
24 Gladding McBean facility, i.e., the process of discovering why the pottery clay formula was causing
25 explosive defects in the pottery) to be Step 1 research documentation of “potentially eligible qualified

26 ///

27 ///

28 ///

1 research”²³ undertaken and documented in a formal report by James Keating, a PCB employee who
2 sought to discover the source of the clay formula defect. Respondent argues that PCB’s Step 1
3 documentation (i.e., research documentation) must demonstrate, in addition to other requirements under
4 IRC section 41(d), a process of experimentation and a discrete business component. Respondent
5 contends that PCB did not properly identify the discrete business component to be studied in the
6 “pop-out” project but suggests that such may relate to the formula of the pottery mixture. (Resp.
7 Opening Br., p. 12.)

8 As for the process of experimentation, respondent contends that PCB must have proposed
9 one or more hypotheses and, it appears that, Mr. Keating and a Mr. Hall seemed to have proposed
10 numerous hypotheses. Respondent also contends that PCB appeared to have methodical plans to test
11 those hypotheses, which changed as the hypotheses changed, and that these hypotheses were tested
12 through systematic trial and error. Finally, respondent contends that PCB must have refined its
13 hypothesis or discarded it and developed a new hypothesis. Respondent argues that this process proves
14 that, when research was necessary, PCB knew how to properly keep research documentation, as it did so
15 for this project in the course of its business. (Resp. Opening Br., pp. 12-13.)

16 Moreover, respondent contends that it was correct to deny the R&D credit to PCB for all
17 of its other projects for which the credit was claimed due to the complete absence of Step 1 research
18 documentation. Because PCB needed to prove Step 2 and Step 3 and failed to do so for the “pop-out”
19 project, the R&D credit was properly denied for that project and for all of PCB’s other projects. (Resp.
20 Opening Br., pp. 12-14.)

21 As for the balance of the PCB’s projects, respondent asserts that none of the
22 documentation submitted is Step 1 research documentation as the documents submitted do not
23 demonstrate activities that qualify under IRC section 41(d), but may only comprise Step 2 accounting
24 documentation as evidence that PCB purchased equipment. Respondent states that it requested Step 1
25 research documentation from PCB for the rest of PCB’s projects, similar to the documentation PCB
26

27 ²³ Respondent asserts that this project, and an unknown percentage of the wages of the six individuals who worked on the
28 project, as qualified research expenses, might be eligible for the R&D tax credit. Respondent contends that this project
spanned from September 25, 2001, to December 5, 2002, such that any claim for qualified research expenses would be
restricted to employees who spent time on the project during that timeframe. (Resp. Opening Br., pp. 12-13.)

1 submitted for the “pop-out” project. Respondent alleges that PCB did not produce Step 1
2 documentation, but only produced Authorization for Funds Expenditures (“AFEs”) with its opening
3 brief and “Qualified Activity Narratives” from its tax credit study. Respondent argues that these
4 documents merely reflect requests for money to purchase equipment but do not prove any qualified
5 activity or meet the requirements of IRC section 41(d) or Treasury Regulation section 1.41-4(d). (Resp.
6 Opening Br., p. 14.)

7 Respondent argues that the documents submitted simply request that funds be allocated to
8 purchase equipment, but do not provide any evidence that could be considered a process of
9 experimentation. In fact, respondent states that, for the dissolved air flotation unit project, a PCB memo
10 states that “The unit we build would be identical to the existing unit and physically located next to it.
11 This proven technology we know works in our system.” Respondent contends that the dissolved air
12 flotation unit project had nothing to do with “qualified research” and does not qualify for the R&D
13 project for the following reasons: (1) the equipment was commercially available and was being
14 purchased and used for its intended purpose; (2) no modification to the equipment was required;
15 (3) there was no evidence of uncertainty; (4) no hypothesis was formed; (5) there was no methodical
16 plan to test the hypothesis; (6) there was no evidence of alternatives tested; (7) there was no evidence of
17 scientific or laboratory testing; (8) there was no systematic trial or error; (9) there was no analysis;
18 (10) there was no attempt to refine a hypothesis; (11) the expenditure is excluded as occurring after
19 commercial production; (12) the expenditure is excluded as an adaptation of an existing business
20 component; and (13) there is no proof of an actual purchase or installation. Respondent asserts that the
21 project did not include any experimentation and was not qualified research but merely, at best, was the
22 retail purchase of equipment and did not entitle PCB to claim the R&D tax credit. (Resp. Opening Br.,
23 pp. 15-16.)

24 As for the type of documentation submitted by PCB, respondent contends that the
25 executive surveys do not constitute “testimony” because those individuals were not under oath and not
26 subject to cross-examination. In addition, respondent questions the survey completed by the executive
27 for the Gladding McBean pottery facility, as the individual claimed to be spending 10 percent of his time
28 developing corrugated boxes at a pottery plant and spending 30 percent of his time engaged in qualified

1 research when PCB, at the same time, claimed that no one at that facility was conducting research.
2 Respondent argues that these errors demonstrate that little attention was put into these statements years
3 after the fact and that these flaws and inconsistencies are a reason to disregard the tax credit study in its
4 entirety. (Resp. Opening Br., pp. 16-17.)

5 Respondent next argues that the quantity of the documents submitted does not equate to
6 the quality of the information contained in those documents and that the tax credit study is composed of
7 accounting documents recreated years after the fact and does not contain research documents.
8 Respondent concludes that, except for the potential eligibility of the “pop-out” project, PCB did not
9 submit any evidence of Step 1 qualified research, such that PCB’s other projects do not meet the
10 statutory requirements of IRC section 41(d). (Resp. Opening Br., p. 17-18.)

11 Respondent next provides a complete analysis of the documentation submitted by
12 appellants with their opening brief²⁴ relating to PCB’s “pop-out” project.²⁵ (Resp. Opening Br.,
13 pp. 30-48.) Respondent asserts that what makes this project different from PCB’s other projects is that a
14 PCB employee, Jim Keating, in the ordinary course of business, kept notes and created a formal report
15 for this project. Respondent states that Mr. Keating kept notes of the potential causes of the “pop-out”
16 problem, notes on his experimentation, notes from his meetings with employees, notes on the origin of
17 the material components used to make the clay mixture, and contemporaneously created a preliminary
18 report of his findings and later completed a formal report. Respondent contends that it is these types of
19 documents that the court in *Union Carbide, supra*, spoke about. Respondent argues that, although the
20 record is incomplete, as PCB did not provide any testing data, Mr. Keating did record his progress on
21 the project, showing that many of the steps in the scientific method were followed, and that this data was
22 all recorded in the ordinary course of PCB’s business, not by a consultant years after the fact. (Resp.
23 Opening Br., pp. 31-32.)

24
25
26 ²⁴ As mentioned in the Overview above, appellants filed 18 exhibits with their opening brief, including approximately 1,300
27 pages of documentation which respondent determined were documents that appellants submitted for the first time. Pages 30
28 to 82 of respondent’s opening brief reflect respondent’s analysis of appellants’ submission and are summarized here.

²⁵ See pages 30 to 48 of Respondent’s Opening Brief. Respondent, in its review of the “pop-out” project, references Exhibit
F of its opening brief.

Pages 49 to 82 of Respondent’s Opening Brief is a summary of respondent’s review of other PCB projects.

Respondent addresses whether the “pop-out” project, which respondent asserts spanned from September 25, 2001, to December 5, 2002, met the requirements of IRC section 41, particularly the process of experimentation requirements of IRC section 41(d)(1)(C) and (d)(3). Respondent states that PCB’s Step 1 documentation (i.e., its research documentation), in addition to the other requirements of IRC section 41(d), must demonstrate a process of experimentation. For example, respondent argues that PCB must have proposed one or more hypotheses and that, for the “pop-out” project, Mr. Keating and Mr. Hall proposed numerous hypotheses over the course of the final report issued and the attached documentation.²⁶ In addition, respondent states that PCB must have had a methodical plan to test those hypotheses through systematic trial and error and, although the report contains almost no data, tests that were conducted were often summarized in company minutes. Next, respondent states that PCB must have analyzed the resulting data which, in this instance, was completed by Mr. Keating. Finally, respondent asserts that PCB must have refined its hypothesis or discarded it and developed a new hypothesis. Here, respondent asserts that PCB continually updated its hypotheses and attempted to test those hypotheses. As a result, respondent concludes that the documentation submitted by PCB for the “pop-out” project was Step 1 research documentation which potentially shows that PCB engaged in eligible activities under IRC section 41(d). (Resp. Opening Br., p. 34.)

Respondent next provides an analysis of the documentation for the other projects submitted by PCB as qualifying for the R&D tax credit.²⁷ (Resp. Opening Br., pp. 49-82.) Respondent states that appellants submitted hundreds of pages of AFEs with their opening brief. Respondent asserts that these documents do not prove any qualified activity by PCB and are not Step 1 research documents, not meeting the requirements of IRC section 41(d) or Treasury Regulation section 1.41-4(d), but are merely requests for money for the purchase of equipment. Respondent contends that these documents, at best, are Step 2 accounting documents and, if appellants were able to prove that some qualified

²⁶ Respondent describes PCB’s documentation as follows: Respondent submitted a final report written by Mr. Keating which included a summary of the problem to be solved, cross-references to specific, contemporaneous experimental documents, the person who generated the document, and, on occasion, a list of the employees involved in the direct support of Mr. Keating’s activities. (Resp. Opening Br., p. 35.)

²⁷ See pages 49 to 82 of Respondent’s Opening Brief. Respondent, in its review of these projects, references Exhibit G of its opening brief.

1 activity occurred, the AFEs might help to prove costs which were associated with the hypothetical
2 qualifying activities. (Resp. Opening Br., p. 50.)

3 Respondent states that appellants submitted a number of AFEs in response to
4 respondent's request for research documentation, similar to the documentation which had been
5 submitted for the "pop-out" project. Respondent contends that, instead of submitting Step 1
6 documentation, appellants resubmitted the qualified activity narratives. (See Exhibit N to Respondent's
7 Opening Brief.) Respondent also contends that appellants submitted project narratives generated in
8 December 2010 and supporting documentation in the form of AFEs. Respondent argues that a
9 comparison of the documents submitted relating to all of PCB's other projects (as summarized below),
10 versus the "pop-out" project discussed above, demonstrates why these documents are not Step 1
11 research documents and why the requests to purchase equipment are not actual research. (Resp.
12 Opening Br., p. 51.) Respondent's analysis of the documentation submitted for PCB's other projects
13 now follows.

14 Vernon Facility/Project Two: Dissolved Air Flotation Unit. (See Exhibit G, pp. 1-3, of
15 Respondent's Opening Brief.) Respondent asserts that these documents are not Step 1 research
16 documents but merely memoranda requesting funds for the purchase of equipment, making the
17 documents nothing more than Step 2 accounting documents. Respondent contends that the documents
18 explicitly state that there would be no experimentation required, such that there is nothing about the
19 project that could be considered qualified research. (Resp. Opening Br., pp. 51-53.)

20 Vernon Facility/Project Three: Reject Separator AFE. (See Exhibit G, pp. 4-6, of
21 Respondent's Opening Brief.) Respondent asserts that these documents are Step 2 accounting
22 documents, and that the project is not qualified research, as the project only involved the purchasing of
23 equipment from the manufacturer and installing it. Respondent notes that PCB stated it made a trial run
24 of a smaller version of the unit that it was requesting. Respondent, however, argues that PCB did not
25 provide any information relating to what, when, or where the "trial" may have been, whether the "trial"
26 was anything more than a sales demonstration, or the employees or the amount of time involved. In
27 short, respondent contends that PCB failed to submit any testing data or any research documentation to
28 prove that the trial activity occurred or that it met the requirements of IRC section 41. (Resp. Opening

1 Br., pp. 53-54.)

2 Vernon Facility/Project Four: Stock Ratio Control AFE. (See Exhibit G, pp. 7-9, of
3 Respondent's Opening Brief.) Respondent asserts that these documents are Step 2 accounting
4 documents, and that the project is not qualified research, as the project again only involved the
5 purchasing of equipment and its installation. Respondent notes that PCB asserts that PABCO's existing
6 paper machine was exclusively designed to meet PABCO's needs, such that PABCO's engineers would
7 have to custom design all modifications to the machine. Respondent contends, however, that PCB did
8 not submit any evidence of custom modifications. Moreover, respondent asserts that merely adapting an
9 existing business component does not involve a process of experimentation and is not qualified research
10 under IRC section 41. Respondent contends that, under *Union Carbide*, the purchase of equipment and
11 its installation, as an activity, is simply a change of a process followed by a verification that the change
12 worked, but such actions are not a qualified activity. Finally, respondent argues that, if this was a design
13 "from the ground up", where is PCB's evidence that this build involved qualified research and that PCB
14 actually engaged in this work? (Resp. Opening Br., pp. 55-56.)

15 Vernon Facility/Project Five: Split Top Felt AFE. (See Exhibit G, pp. 10-12, of
16 Respondent's Opening Brief.) Respondent states that this project (i.e., the installation of a new felt
17 stretcher, a vacuum box, cleaning showers, and a suction drum loading assembly) was labeled by PCB
18 as maintaining existing capacity. However, respondent contends that this project was simply the
19 purchasing and installation of a machine and verifying that the machine worked, which is not qualified
20 research, and the documents submitted are only Step 2 accounting documents.²⁸ (Resp. Opening Br.,
21 pp. 56-57.)

22 Newark Facility/Project Six: Ball Mill—Phase 1. (See Exhibit G, pp. 13-20, of
23 Respondent's Opening Brief.) Respondent asserts that this project (i.e., the purchase and installation of
24 a ball mill along with the necessary feeders and conveyers) was simply the buying of equipment and
25 verifying that the machine worked, which is not qualified research, and that the documents submitted are
26

27 ²⁸ Respondent asserts that there are other flaws with the projects at the Vernon facility—PCB claimed \$694,214 in
28 "extraordinary utilities" as qualified research expenses for the tax year ending March 31, 2001. This is summarized in full in
Respondent's Opening Brief section of Issue 2 below. (Resp. Opening Br., p. 57.)

1 only Step 2 accounting documents. Additionally, respondent contends that there is no evidence that
2 anything about the project could be considered a process of experimentation. (Resp. Opening Br.,
3 p. 58.)

4 Newark Facility/Project Seven: Stucco Screen & Associated Equipment. (See Exhibit G,
5 pp. 21-34, of Respondent's Opening Brief.) Respondent asserts that this project (i.e., the purchase and
6 installation of a enclosed stucco screen and a screw conveyor) was simply the buying of equipment and
7 verifying that the machine worked, which is not qualified research, and that the documents submitted are
8 only Step 2 accounting documents. Additionally, respondent contends that there is no evidence that
9 anything about the project could be considered a process of experimentation. (Resp. Opening Br.,
10 p. 59.)

11 Newark Facility/Project Eight: Purchase & Installation of a Bulk Bag Handling System.
12 (See Exhibit G, pp. 35-41, of Respondent's Opening Brief.) Respondent asserts that this project (i.e.,
13 the purchase and installation of bulk bag handling equipment) was simply the buying of equipment and
14 verifying that the machine worked, which is not qualified research, and that the documents submitted are
15 only Step 2 accounting documents. Additionally, respondent contends that there is no evidence that
16 anything about the project could be considered a process of experimentation. (Resp. Opening Br.,
17 p. 60.)

18 H.C. Muddox/Project Nine: Flue Kiln. (See Exhibit G, pp. 42-85, of Respondent's
19 Opening Brief.) Respondent states that this project, relating to a 1997 construction contract, is outside
20 (i.e., prior) of the tax years at issue. Moreover, respondent asserts that the project is a construction
21 project to repair or rebuild a kiln, not a research project, and that there is no evidence of a process of
22 experimentation relating to the project. Respondent contends that the documents submitted by PCB
23 clearly establish that there was no research anticipated or conducted relating to the project such that the
24 project is not qualified research. (Resp. Opening Br., pp. 61-65.)

25 Basalite-Dixon/Project 10. (See Exhibit G, pp. 86-96, of Respondent's Opening Brief.)
26 Respondent states that PCB submitted 145 alleged technical projects with its opening brief for the
27 Basalite Dixon facility. However, respondent contends that the documents submitted illustrate nothing
28 more than routine quality control activities. Moreover, respondent argues that the documents do not

1 even meet the less stringent requirements of being IRC section 174 research deduction expenses, as the
2 projects are not “research or experimental”, as the term “research or experimental expenditures” does
3 not include the ordinary testing or inspection of materials or products for purposes of quality control.
4 (Treas. Reg. § 1.174-2(a)(3)(i).) Respondent also argues that these projects do not reflect any follow-up,
5 hypothesis, alternatives, actual testing, analysis, or refinement, such that the projects do not reflect any
6 process of experimentation. Respondent specifically reviewed several of these projects at pages 65
7 through 78 of its opening brief. (Resp. Opening Br., pp. 65-77.)

8 Gladding McBean Lincoln/Project 11: Roof Tile Modernization. (See Exhibit G.,
9 pp. 97-157, of Respondent’s Opening Brief.) Respondent asserts that these documents represent a cost
10 analysis for the purchase of equipment, having nothing to do with IRC section 174 research or IRC
11 section 41 research. Respondent contends that PCB did not identify a discrete business component and
12 that there is no evidence of a process of experimentation relating to equipment purchases. Respondent
13 argues PCB’s equipment purchases were capitalized, such that the purchases may not be treated as IRC
14 section 174 expenses and, thus, are not eligible to qualify under IRC section 41(d)(1)(A). (Resp.
15 Opening Br., pp. 78-82.)

16 For each of these projects, respondent argues that each failed to qualify for the R&D
17 credit for various reasons, including the following: (1) the manufacturing equipment was commercially
18 available and was being used for its intended purpose; (2) no modifications were required; (3) no
19 hypothesis was formed; (4) there was no methodical plan to test a hypothesis; (5) there was no evidence
20 of alternatives tested; (6) there was no evidence of scientific/laboratory testing; (7) there was no
21 systematic trial and error; (8) there was no analysis; (9) there was no attempt to refine a hypothesis;
22 (10) the project is excluded as occurring after commercial production; (11) the project is excluded as an
23 adaptation of an existing business component; (12) the project is excluded as a routine or an ordinary
24 inspection for quality control; and (13) the project did not meet IRC section 174 expense requirements,
25 as the project was not “research or experimental”. (Resp. Opening Br., pp. 52-78.)

26 Appellants’ Reply Brief

27 Appellants assert that PCB provided a thorough R&D credit study that included
28 documentation which satisfied the published guidelines of the IRS and the Franchise Tax Board, such as

1 supporting contemporaneous and supplementary documents, interviews, and plant tours. (Appellants
2 reference the the 2008 IRS Audit Techniques Guide, as referenced above in Applicable Law, and the
3 publication entitled “Research & Development Credit: Frequent Asked Questions” (Publication 1082,
4 revised February 2008) (hereafter “the FTB R&D FAQs”).) Appellants contend that respondent
5 nevertheless failed to understand PCB’s qualified activities and the nature of the supporting
6 documentation provided, resulting in respondent’s denial of the claimed R&D tax credits, while the IRS,
7 reviewing the same tax credit study, allowed 100 percent of the claimed federal R&D tax credits.²⁹
8 Further, appellants contend that, instead of understanding PCB’s operations and documentation,
9 respondent created a new three-step framework which mandated project accounting and, at the same
10 time, committed numerous errors in its review of PCB’s documentation. Appellants argue that PCB
11 engaged in qualified research activities as provided by IRC section 41 and R&TC section 23609 and
12 satisfied the documentation requirements of IRC section 6001, and its accompanying regulations, and
13 the guidance issued by the IRS and respondent. (App. Reply Br., pp. 1-2.)

14 Appellants assert that PCB’s R&D activity stems from over 60 years of experience in the
15 building materials industry by optimizing performance and continually improving techniques and
16 processes at its 75 locations. In addition, appellants contend that, because of the continually evolving
17 demands of the building industry and PCB’s business needs, PCB conducts R&D activities in
18 experimental manufacturing processes and improvements with an application to PCB’s business and to
19 develop new, or to improve existing, products for the building industry. (App. Reply Br., pp. 2-3.)

20 Regarding PCB’s tax credit study, appellants assert that PCB engaged PwC in 2005 to
21 conduct a study for the years ending March 31, 1999, through March 31, 2005, and that the study
22 documented PCB’s activities and expenses by following an established methodology. Appellants argue
23 that the goal of the study was two-fold: (1) to identify and verify PCB’s qualified research activities for
24 purposes of computing the R&D tax credit for state and federal purposes; and (2) to gather and organize

25
26
27 ²⁹ In separate letters to PCB dated April 30, 2009 (one letter for the tax year ending March 31, 2005, and a second letter for
28 the tax year ending March 31, 2006), the IRS stated the following (App. Opening Br., Exhibit 18):
“Our recent examination of your returns for the above years shows no change is necessary in the information reported. We
have accepted the returns as filed. This is the final notice you will receive regarding the examination.”
In addition, a Form 4605-A was included with the letters and contained the following remark: “This report indicates that the
examination resulted in no change to the tax years in question.”

1 the supporting documentation to facilitate an audit review. Consequently, appellants contend that the
2 study organized and documented the connection between PCB's expense records and the allocation of
3 those expenses to qualified research activities, substantiated by documentation maintained by PCB in the
4 regular course of its business, and provided the basis for PCB to claim qualified research activities.
5 (App. Reply Br., p. 3.)

6 Appellants contend that, in addition to satisfying the requirements of state and federal
7 law, PCB also followed and satisfied the guidance provided in the 2008 IRS Audit Techniques Guide
8 and the FTB R&D FAQs. For example, appellants state that the 2008 IRS Audit Techniques Guide
9 contemplates (1) that taxpayers may compute the R&D credit by using cost center or departmental
10 accounting, rather than project accounting; (2) that an auditor should determine the methodology
11 employed (such as estimates, interviews, sampling, surveys, reviews of contemporaneous documents,
12 etc.) for capturing qualified research expenses in the workpapers; and (3) that it would be helpful for an
13 auditor to review various types of documentation.³⁰ (App. Reply Br., pp. 3-4.)

14 In addition, appellants state that the 2008 IRS Audit Techniques Guide provides that the
15 following information may assist an auditor: (1) materials which explain research activities, including
16 brochures, pamphlets, press releases, and other similar documents; (2) submissions to management, the
17 board of directors, review committees or other similar groups regarding research projects, activities,
18 expenditures, and the R&D credit; (3) documents prepared by, or on behalf of, internal audit, including
19 quarterly and annual reports that refer in any manner to research activities; (4) minutes, notes, or other
20 similar recordings from budget, board of directors, managerial, or other similar meetings concerning
21 research activities; (5) project authorizations, budgets, or work orders that initiate a research project;

22
23 ³⁰ Appellants note that, pursuant to chapter 2 of the IRS Audit Techniques Guide, an auditor should review the following:
24 (1) chart of accounts; (2) accounting and finance manuals; (3) organization charts; (4) department descriptions; (5) job
25 position descriptions; (6) product lists; (7) documentation of experiments; (8) patent applications; (9) workpapers used to
26 compute qualified research expenses; (10) workpapers used to compute the research credit; (11) workpapers used to compute
the base amount; and (12) documentation on qualified research expenses/gross receipts from acquired/disposed trades or
businesses. (App. Reply Br., p. 4.)

27 Board staff notes that it reviewed chapter 2 of the IRS Audit Techniques Guide, its exhibits, and the *Audit Techniques Guide:*
28 *Credit for Increasing Research Activities (i.e., Research Tax Credit) IRC § 41*, which is embedded in chapter 2 of the IRS
Audit Techniques Guide under "RC Claim Examination Tools" as "General ATG". Board staff was only able to find "chart
of accounts" and "organization charts" mentioned in the embedded material as types of documents which an auditor should
review.

1 (6) the internal authorization policies for approving a research project; (7) project summaries and/or
2 progress reports and project meeting minutes; (8) field and lab verification data/summary data;
3 (9) research credit studies conducted by outside consultants; (10) papers, treatises, or other published
4 documents regarding the taxpayer's research; and (11) complete copies of contracts, letter agreements,
5 memoranda of understanding, or similar documents for research performed by, or on behalf of, a third
6 party. (App. Reply Br., pp. 4-5.)

7 In addition to the above, appellants state that respondent, in the FTB R&D FAQs, also
8 lists the following documents which it relies on to determine the R&D credit: (1) papers, treatises,
9 patents and their supporting workpapers, letters, scientific articles acknowledging the work, supply
10 invoices, or other published documents about the taxpayer's research; (2) human resource documents,
11 including self-appraisals, annual reviews, and time reports; (3) travel and entertainment reimbursement
12 forms; (4) email; (5) federal and state tax returns, including the returns filed in other states, and
13 apportionment workpapers to prepare the various state returns; and (6) the taxpayer's general ledger.
14 (App. Reply Br., p. 5.)

15 Appellants further contend that both the IRS and FTB guidance provide that credible oral
16 testimony by individuals with personal knowledge of the issues may be helpful in supplementing a
17 taxpayer's contemporaneous documentation. Here, appellants assert that PCB, through its study, plant
18 tours, and audit responses, provided documentation and information satisfying most of the items set
19 forth on the IRS's and FTB's lists as well as information sufficient to connect PCB's qualified research
20 activities and its qualified research expenses. However, appellants note that only the IRS accepted the
21 tax credit study in its examination of PCB's R&D activities. (App. Reply Br., p. 5.)

22 Appellants assert that much of the confusion in respondent's opening brief is attributed to
23 respondent's refusal to examine PCB's entire tax credit study. Appellants note that respondent's
24 descriptions and references to the study (i.e., in which respondent asserts that approximately 1,500 pages
25 of documents were not provided at audit, including the 70 pages relating to the "pop-out" project) fail to
26 account for the binders of supporting documentation included in the study or to have fully reviewed the
27 study. (App. Reply Br., pp. 5-6.)

28 Appellants contend that PCB provided the study documentation during the audit and that

1 appellants were surprised to see, after receiving respondent's audit file after submitting their opening
2 brief, that respondent's audit file did not include the supporting documentation from the study's
3 documentation binders. Appellants state that respondent's entire audit file consisted of 6 binders, while
4 PCB's study alone consisted of 13 binders.³¹ Appellants assert that, during the audit, PCB made the
5 complete study available to respondent, including the documentation binders for PCB's R&D projects, a
6 submission which included the documentation appellants also provided with their opening brief. (App.
7 Reply Br., p. 6.)

8 Appellants contend that respondent's failure to audit the entire tax credit study is
9 highlighted by respondent's discussion of the "pop-out" project. Appellants assert that PCB did not
10 submit documents relating to the "pop-out" project in reply to respondent's information document
11 request (IDR) because PCB did not interpret the request as describing such documents and because PCB
12 had previously submitted the detailed documentation relating to the "pop-out" project as part of the
13 study. Nevertheless, appellants note that respondent criticizes PCB for not providing the "pop-out"
14 project documents at audit and that the documents were within the scope of respondent's prior IDR.
15 (App. Reply Br., pp. 6-7.)

16 Appellants argue that respondent's insistence that taxpayers maintain particular forms of
17 documentation in a project accounting format is not supported by the relevant authorities. Appellants
18 state that IRC section 41 provides that taxpayers who claim the R&D tax credit are bound by IRC
19 section 6001 and the accompanying regulations. Appellants state that, under the regulation, every
20 taxpayer must maintain "books of account or records . . . as are sufficient to establish the amount of . . .
21 credits . . . required to be shown by such person in any return of such tax or information." (Treas. Reg.
22 § 1.6001-1(a).) Appellants assert that this general documentation requirement applies to all taxpayers
23 and is not intended to be overly burdensome or to require specific recordation requirements. In fact,
24 appellants note that the IRS, at one time, proposed regulations to require specific recordation during the
25 process of experimentation and the retention of contemporaneous documentation. However, appellants
26 assert that, after criticism from taxpayers and Congress, the IRS removed these requirements and
27

28 ³¹ Board staff notes that appellants apparently did not file all the study materials as evidence in this appeal.

1 replaced the proposed regulations with the less burdensome requirement of Treasury Regulation section
2 1.6001-1. As a result, appellants contend that the taxpayers who meet the document substantiation
3 requirements of IRC section 6001 and Treasury Regulation section 1.6001-1 are entitled to R&D tax
4 credits claimed under IRC section 41. (App. Reply Br., pp. 7-8.)

5 Appellants contend that, not only did PCB provide respondent with an R&D study
6 containing contemporaneous and supplemental documentation to support its qualified research activities
7 and its qualified research expenses, but PCB also provided respondent with (1) project narratives that
8 provide an in-depth description of PCB's qualified research activities and (2) interviews, discussions,
9 and plant tours by PCB's representatives and high-level executives. Appellants assert that, for
10 respondent to ignore the documentation submitted and to request documentation in a form not
11 specifically mandated by statute, regulations, case law, or agency guidance, is arbitrary, unreasonable,
12 and an impractical application of the law. (App. Reply Br., p. 8.)

13 Appellants argue that respondent's piecemeal analysis of PCB's study is inconsistent
14 with case law, such as *Union Carbide*, and that PCB provided respondent with documents exactly like
15 those accepted by the court in that case. Appellants assert that, in the tax credit study, PwC
16 implemented an established methodology to ensure the accuracy and authenticity of the signed time
17 surveys that are the basis for PCB's claimed credits, as the executive surveys are corroborated in the
18 study with representative samples of testing and design documentation and other corroborating
19 evidence, including authorization for funds for various parts and machines needed for process
20 improvements. In addition, appellants contend that additional documentation was submitted during the
21 audit to support the study and that PCB provided respondent with three separate plant tours, focusing on
22 PCB's R&D areas and activities. Consequently, appellants conclude that respondent's refusal to
23 consider all of the documentation provided in the study is inconsistent with applicable case law. (App.
24 Reply Br., pp. 8-9.)

25 Appellants argue that respondent's analysis of PCB's claimed credits suggests that
26 respondent did not fully understand the methodology used in the study and a complete picture of PCB's
27 qualified research activities, as respondent limited its analysis to specific documents found in the study
28 such as AFEs. Appellants contend that the study was carefully prepared and organized with the

1 intention of the study being analyzed as a whole but that respondent used a fragmented approach to
2 support its denial of the claim. Appellants argue that respondent, in its opening brief, focuses primarily
3 on PCB's AFEs in its analysis of PCB's projects. However, appellants assert that such documentation is
4 not an accurate representation of the documentation provided to respondent with the study, as the AFEs
5 were only intended to supplement other documents found in the study's binders to substantiate PCB's
6 qualified research activities. (App. Reply Br., p. 9.)

7 Appellants assert that the raw materials handling upgrade project at PCB's Newark
8 facility is an example of a qualified research activity that was substantiated by both an AFE and
9 supplemental documentation (i.e., a project description and an executive survey).³² Appellants state that
10 the AFE requested funds for feeders and conveyers, the project description discussed the modifications
11 needed to accommodate the feeders, and the executive survey, completed by the president of PABCO
12 Gypsum, discussed the research undertaken for the project. Appellants contend that the documents,
13 taken as a whole, meet the requirements set out by the IRS, respondent, and the case law to claim the
14 R&D credit for this qualified research activity. (App. Reply Br., pp. 9-10.)

15 Appellants criticize respondent's piecemeal approach in reviewing the tax credit study,
16 referencing respondent's review of the research activities at the Basalite Dixon facility in which
17 respondent focused its review on technical project documents. Appellants assert that the technical
18 project documents were only intended to supplement other contemporaneous and non-contemporaneous
19 documents which PCB provided in the documentation binders, including qualified activity narratives,
20 executive surveys, and the results of the plant's block plant trials. Appellants also question respondent's
21 sampling method as being an incomplete study of the research and testing which PCB conducted in each
22 of the technical projects. (App. Reply Br., p. 10.)

23 Appellants next criticize respondent's single-minded focus in referencing cost and
24 purchasing expenses without, at the same time, also referencing PCB's support for experimentation. For
25 example, regarding the roof tile modernization project at the Gladding McBean Lincoln facility,
26

27 ³² Board staff notes that appellants reference Exhibit 3, apparently a reference to exhibit 3 of appellants' reply brief. Exhibit
28 3 of appellants' reply brief is various correspondence from the Franchise Tax Board. Exhibit 3 of appellants' opening brief
contains various documents relating to the basis weight scanner project at the Vernon facility.

1 appellants assert that respondent selectively analyzed various meeting notes (see pages 97 to 115 of
2 Exhibit G of Respondent's Opening Brief) to point out references to cost and purchasing when, at the
3 same time, the same meeting notes reference research, testing, and design approval relating to the same
4 project which respondent failed to mention in its brief. Moreover, appellants assert that, according to
5 the qualified activity narrative for this project,³³ the project included significant process enhancements,
6 was extremely technical in nature, and required a substantial evaluation of alternative materials,
7 methodologies, machinery, and technical specifications related to the manufacturing functionalities.
8 (App. Reply Br., pp. 10-13.)

9 Appellants also contend that respondent's single-minded focus on PCB's cost documents,
10 as a means of undermining PCB's R&D credit claim, loses sight of the fact that both the IRS and
11 respondent have stated in guidance regarding the R&D credit that various types of cost documents, such
12 as submissions to management regarding research expenditures, minutes or notes from budget meetings,
13 project authorizations, and budgets or work orders that initiate research projects, are acceptable
14 documentation to support an R&D claim. Appellants assert that respondent, as mentioned above,
15 adopted the IRS documentation list and also added supply invoices and other documents as acceptable
16 documentation to support the R&D credit. Appellants contend that cost documentation does not
17 disprove that research was conducted but instead supports the fact that research occurred. (App. Reply
18 Br., pp. 13-14.)

19 Appellants next rebut respondent's "glaring error" in claiming that the general manager
20 of the Gladding McBean Lincoln facility (i.e., William Padavona) stated in his executive survey that he
21 spent 10 percent of his time creating corrugated boxes. Appellants argue that the term "corrugated
22 combinations" is a reference to the research and development of clay and ceramic products, like roof
23 tiles, that are corrugated or shaped into alternating parallel grooves and ridges. Appellants contend that
24 respondent's error was an attempt to discredit PCB's R&D study and that the error is an example of how
25 unreliable, inaccurate, and incomplete respondent's examination of the study was. (App. Reply Br.,
26 p. 14.)

27
28 ³³ Appellants reference Exhibit N of their opening brief as the location of the qualified activity narrative for the roof tile modernization project. This document is actually Exhibit N of respondent's opening brief.

1 As for PCB's claimed qualified supplies and extraordinary utilities, appellants contend
2 that respondent's assertion, that such expenditures were part of PCB's day-to-day operations, downplays
3 the research activities and qualifying expenses that actually occurred at the Gladding McBean facility.
4 Appellants argue that respondent's assertion contradicts respondent's own analysis of the "pop-out"
5 project in which respondent detailed the experimentation activities of a single project at that Gladding
6 McBean facility. Appellants contend that the research activities performed at all of PCB's facilities, by
7 their very nature, require extraordinary amounts of power consumption due to the creation of test
8 samples, experimental models, and prototypes that are necessary to develop new and improved products.
9 Consequently, appellants assert that it is contradictory for respondent to acknowledge the significant
10 research activities that occurred at this one facility and, at the same time, to dismiss the same activities
11 as simply pulling test pots from the production line. (App. Reply Br., p. 15.)

12 Appellants argue that another example of respondent's failure to understand the R&D
13 credit study is found in respondent's analysis of the wage questionnaires of the H.C. Muddox plant.
14 Appellants contend that respondent incorrectly states that all of the employees for this facility claimed to
15 be engaged in direct support of qualified research but that no employees claimed to be engaged in
16 research. Appellants, however, point out that the operations manager of the H.C. Muddox plant (i.e.,
17 Gerry Gunning) stated in his executive survey that he engaged in, and directly supervised, qualified
18 research activities. Appellants contend that this executive survey was part of the tax credit study and
19 was submitted to respondent at audit. Appellants note that the qualified activity narrative for the H.C.
20 Muddox facility also detailed the testing and experimentation undertaken for the holding room
21 improvements project. Consequently, respondent's misunderstanding should have been addressed at
22 audit and is just another example of respondent's failure to properly review and understand PCB's tax
23 credit study. (App. Reply Br., pp. 15-16.)

24 Appellants next contend that PCB was involved in both process improvement projects
25 (such as the basis weight scanner project, the palletizer project, the vapor system project, the pallet
26 turnover device project, and the mold insertion device project) and product development projects, but
27 that respondent spent much of its time attempting to find fault with one of PCB's product development
28 projects, the "pop-out" project. Appellants assert that the IRS provides that qualified research occurs in

1 even the most mundane industries and that PCB's ability to continually improve its processes and
2 products is a critical factor in its success. As such, appellants argue that the larger view of PCB's R&D
3 operations, as found in its tax credit study, includes process improvement R&D projects and
4 acknowledges that a building supply manufacturer can engage in research and development. (App.
5 Reply Br., pp. 16-17.)

6 Appellants next contest respondent's assertion that PBC and/or PwC created or recreated
7 accounting documents "years after the fact" as a means of discrediting the study. Appellants argue that
8 PBC engaged PwC to determine the proper amount of the qualified R&D conducted by PBC based upon
9 contemporaneous documentation and information from experienced managers and employees who were
10 employed by PBC during the claim years. Moreover, appellants assert that any non-contemporaneous
11 documentation (such as wage questionnaires, cost estimates, and various narratives) were created solely
12 for the purpose of providing additional context for the contemporaneous research and accounting
13 documentation included in the study. (App. Reply Br., pp. 17-18.)

14 Appellants next assert that PCB based its federal R&D credit claims for the tax years
15 ending March 31, 2005, and March 31, 2006, on the same R&D tax credit study that is at issue in this
16 appeal, a study which covers the tax year ending March 31, 1999, through the tax year ending March 31,
17 2005. Thus, appellants note that the IRS and respondent reviewed the same study and the same
18 documentation and reached completely different conclusions, as the IRS accepted PCB's federal R&D
19 tax credits in full. Appellants allege that respondent refuses to recognize that the IRS audit occurred or
20 the relevancy of the IRS determination. Appellants argue that the IRS actively examined PCB's study
21 documentation, as evidenced by the IDRs issued by the IRS, such that the IRS conducted an audit of
22 PCB's tax credit study and approved the R&D tax credits claimed by PCB. (App. Reply Br., pp. 18-20.)

23 Appellants conclude that, had respondent analyzed the study with a proper interpretation
24 of the applicable law and grasped the nature of the methodology and the supporting documentation that
25 made up the study, respondent would have determined that PCB was engaged in qualified research
26 activities and would have accepted PCB's claimed credits in full. (App. Reply Br., p. 20.)

27 Respondent's Reply Brief

28 In its reply brief, respondent seeks to address appellants' assertions (1) that respondent

1 failed to consider, review, and analyze all of the documentation, including the tax credit study, provided
2 by PCB during the audit, (2) that respondent instead engaged in a piecemeal approach to reviewing the
3 documentation submitted by PCB, and (3) that respondent attempted to reaudit the study on appeal.
4 (Resp. Reply Br., pp. 1-3.) Respondent asserts that, despite appellants' claims, respondent carefully
5 reviewed all of the documentation provided to it during the audit, PCB did not provide or make available
6 all of the relevant documents during the audit (including the documentation relating to the "pop-out"
7 project), and, moreover, none of the documentation provided at audit was contemporaneous research
8 documentation. (Resp. Reply Br., p. 3.)

9 Respondent states that PCB claimed zero R&D tax credits on its original returns for the
10 appeal years at issue. However, respondent states that, in October 2004, the individual appellants (as
11 shareholder of PCB) in this matter filed protective claims for refund of \$1.00 or more for the tax year
12 ending March 31, 1999, and (1) stated that PCB was in the process of completing an R&D credit study
13 for the tax year ending March 31, 1999, and (2) requested that no action be taken on their claims until
14 such time that the tax credit study was completed and their claims for refund had been perfected. (Resp.
15 Reply Br., p. 3.)

16 Respondent next states that, on August 31, 2005, appellants submitted amended 1999
17 returns for all of the individual appellants³⁴ and an R&D credit study documentation binder for PCB for
18 the tax year ending March 31, 1999. Respondent states that the study's documentation binder consisted
19 of the following: (1) a narrative which described PCB's qualified research activities and expenses for
20 one of the six location in which PCB claimed the R&D credit; (2) PCB's calculation of the credit; (3) a
21 report which summarized wages of PCB's employees; (4) PCB's prior tax returns to support average
22 gross receipts calculations; (5) PCB's prior tax returns to support its base period computation; and
23 (6) for each of the locations in which the credit was claimed, the following was submitted: (i) a narrative
24 which described the R&D activities, signed by an executive of that location; (ii) a report of the
25 employee's wages and the executive's estimate of the percentage of the employees' wages which was
26 attributable to R&D activities; and (iii) the executive's estimate of the percentage of his wages which
27

28 ³⁴ In the August 31, 2005 letter from PwC to respondent, shareholders Kevin Harris and Katie Harris are mentioned as not filing amended 1999 returns. Such individuals are not appellants in this appeal.

1 was attributable to R&D activities. (Resp. Reply Br., pp. 3-4.)

2 Respondent asserts that this submission did not include any contemporaneous research
3 documentation. Respondent states that (1) its auditor reviewed the above documentation, (2) proposed a
4 disallowance of a portion of the credit in January 2006, (3) appellants' representative responded, and
5 (4) in April 2006, respondent requested a summary of each R&D project and the organizational chart for
6 each of PCB's subsidiaries. (Resp. Reply Br., p. 4.) In response to this request, respondent states that,
7 in May 2006, PCB submitted approximately 117 pages of exhibits, which consisted of (1) a two-page
8 memorandum which, except for one project which included a description, merely stated the title of
9 PCB's major R&D projects, and (2) 115 pages which were qualified activity narratives for each of
10 PCB's locations. Respondent, however, contends that no contemporaneous research documentation was
11 included with this submission. (Resp. Reply Br., p. 5.)

12 Respondent also states that, during this time, the individual appellants and appellant PCB
13 submitted amended returns for (and related to) other tax years on appeal (i.e., PCB's tax years ending
14 March 31, 2000, March 31, 2001, March 31, 2002, and March 31, 2003). Respondent asserts that
15 appellants' representative indicated, in August 2006, that credit studies for the additional years were
16 completed but that the representative did not want to provide those studies until respondent had finalized
17 a determination for the tax year ending March 31, 1999. However, respondent asserts that, in response
18 to its auditor's request for these studies prior to her plant tours, appellants' representative provided a
19 credit study for the tax year ending March 31, 2000, through the tax year ending March 31, 2003.
20 Respondent states that this tax credit study contained the same documentation, as that contained in the
21 March 31, 1999 tax credit study, and that PCB did not provide any contemporaneous research
22 documentation with the study. (Resp. Reply Br., p. 5.)

23 Respondent states that its auditor toured three of PCB's facilities, the Vernon, Newark,
24 and Gladding McBean Lincoln plants and subsequently issued various IDRs to PCB. Respondent states
25 that, in response to one IDR, PCB stated that: "Gladding McBean's management was critically involved
26 in all aspects of the projects and project status was communicated during regular meetings. As a result,
27 the Company did not maintain this type of official documentation." Respondent also states that PCB
28 submitted the following in response to its IDRs: an executive study, wage and other expense documents,

1 and an organizational chart, but that no contemporaneous documentation was provided. (Resp. Reply
2 Br., pp. 5-6.)

3 Respondent states that it issued its final IDR on September 28, 2008, and asked PCB if
4 any of the following documents were available to substantiate that PCB performed qualified research
5 activities: (1) timesheets; (2) project logs; (3) notes; (4) calendars; and (5) journals. Respondent asserts
6 that, on November 3, 2008, PCB stated that: “The information found in these records has already been
7 furnished to the FTB in other documentation as part of prior IDR response submissions.” Respondent
8 also states that PCB attached exhibits to this response that had previously been provided with its other
9 submissions. (Resp. Reply Br., pp. 6-7.)

10 Respondent next states that, in a January 30, 2009 position letter to PCB, it informed the
11 company of its position (that it would disallow the R&D credits claimed), invited PCB to respond, and
12 stated that “[n]o relevant, contemporaneous documentation was ever provided to substantiate that the
13 taxpayer was engaged in qualified research.” Respondent states that, on April 3, 2009, PCB provided its
14 final documentation submission for the audit and that the submission included documents which had
15 previously been submitted during the audit (i.e., PCB’s audit correspondence, qualified activity
16 narratives, and the executive summary), seven pages of AFEs, and five pages of price quotes from
17 PCB’s vendors, along with a one-page schematic. (Resp. Reply Br., p. 7.)

18 Respondent states that, with the filing of their opening brief, appellants submitted 18
19 exhibits, 10 of which (exhibit 5 and exhibits 8 through 16 of appellants’ opening brief) were
20 correspondence from the audit and/or were documentation created for the tax credit study and provided
21 during the audit. Respondent asserts that the following eight exhibits to appellants’ opening brief
22 (exhibits 1, 2, 3, 4, 6, 7, 17, and 18) had not previously been provided to respondent: (1) a 50th
23 anniversary report of PCB (exhibit 1 of appellants’ opening brief); (2) a one-page listing of PCB’s major
24 California R&D projects (exhibit 2 of appellants’ opening brief); (3) a report from Jim Keating to the
25 general manager (Bill Padavona) of the Gladding McBean Lincoln facility regarding the “pop-out”
26 project (exhibit 4 of appellants’ opening brief); (4) federal and state tax returns and credit calculation
27 details (portions of which had previously been provided at audit) (exhibit 6 of appellants’ opening brief);
28 (5) qualified activity narratives (which had previously been provided at audit) and supporting

1 documentation (which had not been previously provided) (exhibits 3 and 7 of appellants' opening brief);
2 and (6) various IRS audit documents (exhibits 17 and 18 of appellants' opening brief). (Resp. Reply
3 Br., p. 8.)

4 Respondent argues that appellants provided this documentation during the appeal, nearly
5 three years after such documentation had been requested, and after the audit had closed. Consequently,
6 respondent disagrees with appellants' assertion (i.e., that the review of this documentation should have
7 occurred during the audit) because PCB prevented a review of the documentation during the audit as
8 such documents were under PCB's control. Respondent argues that, once this documentation was under
9 its control during the appeal, respondent considered, reviewed, and analyzed all of appellants' new
10 documentation, documentation that should have been provided and analyzed during the audit. (Resp.
11 Reply Br., p. 8.)

12 Respondent responds to appellants' assertion that the study documentation was submitted
13 during the audit and that respondent's audit file did not include the supporting documentation from the
14 study's documentation binders. Respondent states that appellants' representative requested respondent's
15 audit workpapers in January 2010 and that respondent provided those workpapers (totaling 2,803 pages)
16 to appellants in March 2010. Respondent agrees with appellants' assertion that the new documentation
17 that was provided as exhibits (including documentation relating to the "pop-out" project) to appellants'
18 opening brief was not part of respondent's audit workpapers—because PCB had not provided such
19 documentation to respondent during the audit. Respondent argues that it didn't refuse to audit the entire
20 study during the course of the audit—it only reviewed the documents that had been provided to it. In
21 other words, respondent argues that it cannot be expected to review at audit documents that weren't
22 presented until the appeal. Respondent contends that, once it discovered that appellants had provided
23 new documentation during the appeal of this matter, it requested a deferral so it could conduct an
24 examination of those documents. (Resp. Reply Br., p. 9.)

25 Respondent states that it reviewed the new documents, requested additional documents
26 from appellants, requested a further deferral of this mater, reviewed the documents submitted by
27 appellants, and then requested that this appeal be returned to active status once it determined that the
28 documents submitted were non-responsive to respondent's request and after discussing the appeal with

1 appellants' representative. Respondent denies that it engaged in a piecemeal approach to its analysis of
2 appellants' documentation, contending that it fully reviewed the documentation appellants submitted at
3 appeal, reexamined the documentation from the audit, and concluded that PCB's re-creations did not
4 prove that qualified research activities occurred. Respondent concludes that, regardless of whether
5 appellants' documentation was reviewed at audit or during the appeal, all of appellants' documentation
6 was reviewed, considered, and analyzed. (Resp. Reply Br., pp. 10-11.)

7 Respondent next argues that instead of demonstrating the qualified research activities
8 which underlie the tax credit study, appellants simply allege that respondent engaged in a piecemeal
9 analysis of the tax credit study and then launch into a discussion of PCB's qualified research expenses.
10 Respondent asserts that appellants must prove that PCB engaged in qualified research activities as
11 respondent has concluded that appellants have not met their obligation of establishing such. Respondent
12 contends that its approach to analyzing appellants' claim is consistent with *Union Carbide, supra*, and
13 *McFerrin*, cases in which the taxpayer was required to prove that it had engaged in qualified research
14 activities. (Resp. Reply Br., p. 11.)

15 Respondent contends that appellants mentioned the raw materials handling upgrade
16 project as an example of a qualified research activity that was substantiated by an AFE and supplemental
17 documentation, a project description, and an executive survey, as specific documents which
18 substantiated PCB's qualified research activity. In reviewing the AFE, which requests funds to purchase
19 "material" for "cost reduction", respondent asserts that there is no mention of specifics such as what
20 might be included in "material", what is to be done with those materials, or whether any process of
21 experimentation might be involved. Respondent argues that the document is merely a request for capital
22 and nothing more. In reviewing the project description, respondent asserts that there is nothing in the
23 document to indicate that qualified research is involved, as the document describes the purchase and
24 installation of equipment but does not mention any uncertainties or have any discussion of any necessary
25 experiments to be performed. (Resp. Reply Br., pp. 11-12.)

26 As for the executive survey for the project, respondent contends that, contrary to
27 appellants' assertion, the executive survey does not contain any discussion of the research undertaken as
28 part of that project nor does it, in conjunction with the AFE and the project description, prove that any

1 qualified research occurred. Respondent asserts that the executive survey contains no discussion of
2 research but merely states “FYE 3/31/2002—Raw Materials Handling Upgrade Project” within the
3 survey document. Respondent contends that the executive survey does not support or supplement that
4 the AFE or the project description involved qualified research or that any portion of the project met any
5 part of the four-part test under IRC section 41(d)(1). (Resp. Reply Br., pp. 12-13.)

6 Respondent next responds to appellants’ assertion that respondent employed a faulty
7 sampling method of analyzing PCB’s 138 technical projects. Respondent asserts that it revised and
8 analyzed all of the documentation relating to the technical projects but only discussed a sample of these
9 projects due to the repetitive nature of the discussion in the interest of economy. Respondent notes that
10 appellants have criticized respondent’s analysis of these projects but have failed to demonstrate that any
11 qualified research activities occurred in these projects. (Resp. Reply Br., pp. 13-14.)

12 Respondent next states that appellants made a chart and mentioned entries of “design
13 drawings” requiring executive signatures, but have failed to tie any of the chart entries to the
14 requirements of IRC section 41(d). Respondent contends that this is an example of appellants’ failure to
15 prove qualified research activities.³⁵ (Resp. Reply Br., p. 14.)

16 Respondent next addresses the “corrugated” product or process relating to the general
17 manager (William Padovana) of the Gladding McBean Lincoln facility. Respondent states that
18 Mr. Padovana claimed to have spent 10 percent of his time creating corrugated combinations, 30 percent
19 of his time engaged in qualified research, and 46 percent of his time directly supervising qualified
20 research. Respondent asserts that, based upon this amount of time, it would like to examine any
21 contemporaneous documentation which proves that Mr. Padovana spent 76 percent of his time engaged
22 in activities that constituted qualified research activities. (Resp. Reply Br., pp. 14-15.)

23 Respondent next argues that PCB’s executive surveys do not prove that IRC section
24 41(d) qualified research occurred. Respondent states that appellants referenced discussions which were
25

26
27 ³⁵ Respondent asks the following: (1) what drawings will require signature?; (2) why are the design drawings significant?;
28 (3) do the design drawings involve a business component of PCB that is to be held for sale, lease, or license?; (4) do the
design drawings involve a business component of PCB that is to be used by PCB in a trade or business of PCB? (5) do
substantially all of the activities related to the drawings constitute a process of experimentation for a qualified purpose?;
(6) are the drawings duplications of existing business components?; and (7) are the drawings adaptations of existing business
components? (Resp. Reply Br., p. 14.)

1 contained in the executive surveys, but respondent asserts that there is no discussion of research
2 activities in the executive survey of the president of the Newark facility (i.e., Alfred Mueller).
3 Respondent argues that Mr. Mueller's executive survey is completely devoid of discussions or of any
4 other evidence of research activities such that the document cannot be deemed to be proof of qualified
5 activities or the claimed 60 percent of Mr. Mueller's time as qualified wages, for each of the years at
6 issue. (Resp. Reply Br., p. 19.)

7 Respondent asserts, citing Treasury Regulation section 1.41-2(c)(2), that there is a
8 presumption that an executive's wages do not qualify for the R&D credit. Here, respondent contends
9 that this presumption was not overcome for the projects listed in Mr. Mueller's executive summary.
10 Moreover, respondent argues that PCB's claim of 60 percent of Mr. Mueller's wages in his executive
11 summary are especially troublesome, because respondent requested additional information relating to
12 Mr. Mueller and the Newark facility, in which he allegedly performed his research, and PCB was unable
13 to locate any additional documentation in response to its request. Respondent asserts that, according to
14 his executive survey, Mr. Mueller spent 60 percent of his time engaged in research or in the supervision
15 of research, yet PCB was unable to locate any additional information relating to these alleged activities.
16 Further, respondent contends that PCB claimed that Mr. Mueller devoted nearly two-thirds of each day,
17 over the course of six years (1999 through 2004), as qualified research activities, yet PCB cannot locate
18 a single document to prove that Mr. Mueller engaged in, or directly supervised, qualified research
19 activities. (Resp. Reply Br., pp. 19-20.)

20 Respondent next contends, relating to the operations manager of the H.C. Muddox plant
21 (i.e., Mr. Gerald Gunning), that there is no evidence that Mr. Gunning was engaged in qualified research
22 activities. Respondent states that PCB places great weight on Mr. Gunning's executive survey and his
23 signature on the qualified activity narrative for the plant and that PCB cites to the wage allocation
24 questionnaires to support this claim. However, respondent argues that appellants refer back and forth to
25 the study and the executive survey, using one non-contemporaneous re-creation to support and bolster
26 another non-contemporaneous document, which only underscores appellants' lack of contemporaneous
27 corroborating documentation. (Resp. Reply Br., p. 20.)

28 Respondent argues that executive surveys are re-creations made years after the fact that

1 are unsupported by any actual research documentation. Here, respondent asserts that PCB failed to
2 address what the documentation for the H.C. Muddox plant states relating to what Mr. Gunning
3 manages. Respondent contends that the documentation provided for the H.C. Muddox plant only shows
4 evidence of capital improvements and ordinary and necessary business expense activity, not qualified
5 research as required by IRC section 41. Moreover, respondent asserts that PCB claimed that no
6 employees were engaged in qualified research at the H.C. Muddox plant as clearly shown by PCB's
7 wage allocation questionnaires, as employees claimed only to be involved in "direct support". As such,
8 respondent argues that there was no qualified research to directly support or to directly supervise at that
9 facility. (Resp. Reply Br., pp. 20-21.)

10 Respondent asserts that, for the year ending March 31, 1999, Mr. Gunning stated that a
11 portion of his time was spent providing direct supervision of individuals who performed qualified
12 research activities at the H.C. Muddox plant, but he fails to attribute any alleged research activity to a
13 single employee. For the years ending March 31, 2000, March 31, 2001, March 31, 2002, and March
14 31, 2003, respondent asserts that Mr. Gunning claimed to have spent 10 percent of his time performing a
15 qualified activity and 20 percent of his time directly supervising, but he failed to attributed any alleged
16 research activity to a single employee in each of these instances. Respondent argues that "engaged in
17 qualified research" (citing *Eustace v. Commissioner* (2001) 81 T.C.M. 1370), means the actual conduct
18 of qualified research, as, for example, a scientist who conducts laboratory experiments. In that regard,
19 respondent asserts that if no employee was claimed as performing a qualified research activity,
20 Mr. Gunning could not be directly supervising anyone. Moreover, respondent asks, to the extent these
21 employees are providing support, appellants have not identified the person or person whom those
22 employees were directly supervising. Respondent concludes that despite appellants' unsubstantiated
23 claims to the contrary, PCB's study executive surveys, and wage allocation questionnaires (i.e., PCB's
24 reconstruction of expenses), are unreliable, inaccurate, incomplete, and wholly insufficient to establish
25 that PCB's employees were engaged in activities which included qualified research. (Resp. Reply Br.,
26 pp. 22-23.)

27 Appellants' Supplemental Brief

28 Appellants assert that the underlying issue in this appeal remains the same: whether the

1 methodology used by PCB in its R&D credit study, which was approved by the IRS in the 2008 IRS
2 Audit Techniques Guide and the IRS audit of the study, is sufficient to substantiate the R&D credits
3 claimed by PCB. Appellants argue that it is apparent that respondent still does not understand the study
4 or is unwilling to accept it, as respondent insists on analyzing PCB's supporting documentation by using
5 a fragmented approach (i.e., relying on a project accounting-type analysis which focuses on individual
6 documents) even though the study was prepared and designed to be analyzed as a whole. (App. Supp.
7 Brief, p. 1.)

8 In response to respondent's assertion that PCB did not provide or make available all of
9 the relevant documents during the audit, appellants argue that respondent's auditor examined desk
10 records and conducted interviews of various employees during site visits and that respondent examined
11 PCB's tax credit study for a period of five years. In spite of this, appellants state that respondent only
12 issued four IDRs during the audit and that, in response to the IDRs, PCB provided the study to
13 respondent, along with explanations of how various parts of study supported the R&D claim. (App.
14 Supp. Brief, pp. 1-2.)

15 Appellants next argue that respondent incorrectly asserted that PCB did not provide any
16 contemporaneous documentation during the audit, as respondent still does not understand the component
17 parts of the study or is unwilling to accept the information provided to it by PCB. Appellants argue that
18 the study is comprised of contemporaneous and non-contemporaneous supporting documentation and
19 was supplemented during the audit by interviews and plant tours. Appellants assert that respondent's
20 discussion of the contemporaneous documentation relating to the "pop-out" project refutes respondent's
21 claim and confirms that PCB provided contemporaneous research documentation. (App. Supp. Br.,
22 p. 2.)

23 Appellants assert that it is apparent that respondent did not understand or was unwilling
24 to accept the supporting documentation and methodology of PCB's tax credit study, as respondent failed
25 to review the documentation supporting the credits claimed in the context of the study as intended.
26 Appellants contend that PCB did not provide support for the R&D credit only through the traditional lab
27 note form but also utilized contemporaneous records that it maintained in the regular course of its
28 business supplemented by other contemporaneous documentation, such as meeting notes and accounting

1 records, facility tours, and statements from its managers and employees to provide a basis for PCB's
2 claim that it engaged in research and development. Appellants assert that respondent utilized a
3 fragmented approach to its analysis of the study's supporting documentation by picking and choosing
4 which documents to analyze and, instead, should have reviewed the various parts of the study together to
5 understand the nature of PCB's qualified research activities. (App. Supp. Br., pp. 2-3.)

6 Appellants assert that an example of respondent's fragmented approach can be found in
7 respondent's refusal to properly review the supporting documentation which PCB provided to
8 substantiate the research activities performed at the Basalite Dixon facility. Appellants contend that
9 PCB explained to respondent that the documentation provided in the study relating to the technical
10 projects was not intended to be the sole documentation relating to that facility's research activities, but
11 was only intended to supplement other contemporaneous and non-contemporaneous documentation
12 provided with the study such as the qualified activity narratives, the executive surveys, and the results of
13 the block plant trials. However, appellants assert that respondent does not discuss any of this
14 supplemental documentation and wrongly contends that PCB failed to provide any discussion or
15 analysis of the research activities conducted at the Basalite Dixon facility. Appellants argue that, if
16 respondent had expanded its analysis and evaluated the supplemental documentation in conjunction with
17 the technical project documents discussed in its reply brief, respondent would clearly understand that the
18 study contained sufficient contemporaneous and non-contemporaneous documentation to support the
19 research activities conducted at this facility. (App. Supp. Br., pp. 3-4.)

20 Appellants next contend that respondent repeated this error relating to its analysis of the
21 roof tile modernization project at the Gladding McBean Lincoln facility. Appellants assert that the tax
22 credit study included a number of contemporaneous meeting notes which reference the research, testing,
23 and design approval of the roof tile modernization project and the qualified activity narrative which also
24 details this project. Appellants argue that respondent failed to review documentation, such as the
25 qualified activity narrative for this project, so as to tie the plant's qualified research activities to its
26 qualified expenses. Additionally, appellants contend that respondent failed to grasp the study's
27 supporting documentation for Mr. Padovana's (the general manager's) qualified research activities at the
28 plant. Appellants argue that respondent focused on the study's executive surveys and wage

1 questionnaires while avoiding any discussion of the contemporaneous documentation provided with the
2 study. For example, appellants argue that respondent questioned the accuracy of Mr. Padovana's wage
3 questionnaire (i.e., the development of corrugated combinations) rather than discussing the numerous
4 documents which PCB provided relating to the Gladding McBean qualified research activities.
5 Appellants assert that respondent's statements relating to the corrugated roof tiles is an example of how
6 respondent attempted to divert from the fact that it did not understand the nature of PCB's tax credit
7 study. (App. Supp. Br., pp. 4-5.)

8 Appellants conclude that PCB provided a thorough tax credit study which satisfied the
9 requirements under federal and state law as well as the published guidance from respondent and the IRS.
10 Appellants assert that the study followed an established methodology which required that PCB's
11 qualified research activities be identified and substantiated and that the study is supported by PCB's
12 business records, kept in the ordinary course of its business, as well as supplemental documentation such
13 as executive surveys, qualified activity narratives, and wage questionnaires, and is not a "prepackaged"
14 credit study as respondent alleges. Appellants argue that respondent has attempted to divert from the
15 central issue of this appeal—that respondent has failed to understand or accept the supporting
16 documentation provided and the methodology used in the study. Through respondent's inaccurate
17 assertions regarding the audit process and the picking and choosing of documents to examine, appellants
18 contend that respondent attempted to discredit the study and to require PCB to utilize project accounting
19 to substantiate its claimed R&D credits. Appellants conclude, however, that respondent failed to
20 accomplish these goals. (App. Supp. Br., pp. 5-6.)

21 STAFF COMMENTS

22 At the hearing, appellants should be prepared to describe in detail the contemporaneous
23 documentation of qualified research activities that they provided (with specific examples of documents
24 that are already part of the record) to substantiate that PCB engaged in the claimed qualified research
25 activities for the years at issue. Appellants should be prepared to explain for each project how this
26 documentation supports their claim that the process of experimentation test was met for each of the
27 projects.

28 In its discussion of the business component element of the four-part test, the court in

1 *Union Carbide* indicated that an examination of “each project” was necessary to identify the business
2 component. There, the court held that:

3 in order to analyze the discrete business components at issue, for each project we must
4 separate the activities that relate to the improvement of the production process from the
5 activities that relate to the product being produced. (Treas. Reg. § 1.41-4(b)(1). The fact
6 that activities that relate to the product being produced do not satisfy the qualified
research tests of IRC section 41(d) will have no impact on whether the activities that
relate to the improvement of the production process satisfy those tests.” (*Union Carbide*,
supra at 213.)

7 For purposes of satisfying the requirement that “substantially all of the activities . . .
8 constitute elements of a process of experimentation”, the court in *Trinity Indus. v. United States* (N.D.
9 Texas 2010) 691 F. Supp. 2d 688, explained the application of the business component “shrinking back”
10 rule as follows:

11 The requirements of [IRC] section 41(d) . . . are to be applied first at the level of the
12 discrete business component, that is, the product, process, computer software, technique,
13 formula, or invention to be held for sale, lease, or license, or used by the taxpayer in a
14 trade or business of the taxpayer. If these requirements are not met at that level, then
15 they apply at the most significant subset of elements of the product, process, computer
software, technique, formula, or invention to be held for sale, lease, or license. This
shrinking back of the product is to continue until either a subset of elements of the
product that satisfies the requirements is reached, or the most basic element of the
product is reached and such element fails to satisfy the test.

16 The four-part test is required to be applied to each individual project in order to determine whether the
17 totality of the activities involved in the project met the requirements of IRC section 41(d) at that level of
18 business component. Thus, while expenses may be estimated provided that there is an adequate basis
19 for estimation, the courts have interpreted IRC section 41 to require an analysis of each business
20 component to determine whether qualified research was conducted.

21 For purposes of the process of experimentation element, the court in *Union Carbide*
22 explained that a hypothesis must be developed and tested in a scientific manner, the results of those tests
23 must be analyzed and the hypothesis must either be refined or discarded and a new one developed and
24 the foregoing steps repeated. Furthermore, the court held that “[w]hile the process of experimentation
25 need identify only one alternative, it generally should be *capable* of evaluating more than one
26 alternative. (Treas. Reg. § 1.41-4(a)(5)(i).) If only one alternative is tested, for that alternative to
27 constitute a *process* of experimentation the taxpayer should conduct a series of experiments with the
28 alternative in order to develop the business component.” (Italics in original.) (*Union Carbide, supra*, at

225.) It appears to the Appeals Division that in order to make a determination in accordance with the foregoing description as to whether certain activities result in the process of experimentation, the steps involved in the development of a specific project would need to be examined.

Based on these analyses, the courts in *Union Carbide* and *Trinity Industries* determined that the proper application of IRC section 41(d) requires an examination of the claimed qualifying research activities as those activities pertain to a specific project which is substantiated by documentation and other evidence. At the hearing, appellants should be prepared to identify the business components and describe, with reference to supporting evidence in the appeal record, the instances in which the process of experimentation element was satisfied in PCB's various projects.

Appellants state that respondent used a "fragmented approach" and that the study was designed to be analyzed as a whole. However, it appears that the 13 binders relating to the tax credit study were not included as part of appellants' submissions in this appeal and are not part of the record in this appeal. Presumably, appellants presented in this appeal those documents which they determined would be most helpful in understanding the basis for their claimed R&D credits. Appellants have the burden of proof and should be prepared to demonstrate how the documentation provided on appeal establishes entitlement to the claimed credits under the applicable legal standards.

ISSUE 2: If appellants have established that PCB engaged in "qualified research" as defined in IRC section 41(d), have appellants established that PCB met its burden of proving "qualified research expenses" for the tax years at issue.

Applicable Law

IRC section 41(b)(2)(A)(i) defines, in relevant part, "in-house research expenses" as "any wages paid or incurred to an employee for qualified services performed by such employee." (Underlining added.) Consistent with this, Treasury Regulation section 1.41-2(a)(1) provides generally that an "in-house research expense of the taxpayer or a contract research expense of the taxpayer is a qualified research expense only if the expense is paid or incurred by the taxpayer in carrying on a trade or business of the taxpayer."

IRC section 41(b)(2)(B) defines "qualified services" as "services consisting of (i) engaging in qualifying research, or (ii) engaging in the direct supervision or direct support of research

1 activities which constitute qualified research.” (Underlining added.) Consistent with this, subdivisions
2 (c)(1) and (c)(2) of Treasury Regulation section 1.41-2 provide in part that:

3 (c)(1) The term “engaging in qualified research” as used in [IRC] section 41(b)(2)(B)
4 means the actual conduct of qualified research (as in the case of a scientist conducting
5 laboratory experiments).

6 (c)(2) The term “direct supervision” as used in [IRC] section 41(b)(2)(B) means the
7 immediate supervision (first-line management) of qualified research (as in the case of a
8 research scientist who directly supervises laboratory experiments, but who may not
9 actually perform experiments). “Direct supervision” does not include supervision by a
10 higher-level manager to whom first-line managers report, even if that manager is a
11 qualified research scientist.

12 Treasury Regulation section 1.41-4(d), expressly effective for 2003, sets forth the
13 following substantiation requirement for IRC section 41 credit claims:

14 (d) Recordkeeping for the research credit. A taxpayer claiming a credit under section 41
15 must retain records in sufficiently usable form and detail to substantiate that the
16 expenditures claimed are eligible for the credit. For the rules governing record retention,
17 see Sec. 1.6001-1. To facilitate compliance and administration, the IRS and taxpayers
may agree to guidelines for the keeping of specific records for purposes of substantiating
research credits.

18 Treasury Regulation section 1.6001-1(a) provides that:

19 (a) In general. Except as provided in paragraph (b) of this section, any person subject to
20 tax under subtitle A of the Code . . . or any person required to file a return of information
21 with respect to income, shall keep such permanent books of account or records, including
22 inventories, as are sufficient to establish the amount of gross income, deductions, credits,
or other matters required to be shown by such person in any return of such tax or
information.

23 Other than Treasury Regulation section 1.41-4(d), and its cross-reference to these general
24 recordkeeping requirements, there is no specific recordkeeping requirement under IRC section 41. In
25 enacting the federal Tax Relief Extension Act of 1999 that renewed the IRC section 41 credit, Congress
26 in a conference report expressly rejected the IRS proposed regulation that included a specific

27 ///

28 ///

1 recordkeeping requirement.³⁶ Hence, the Treasury Department in 2001 stated that “the 2001 proposed
2 regulations do not contain a specific recordkeeping requirement beyond the requirements set out in
3 [IRC] section 6001 and the regulations thereunder.” (Treasury Decision (T.D.) 9104, 2004-1
4 Cumulative Bulletin (C.B.) 406.) Thus, when the IRS issued the current regulation as a proposed
5 regulation in 2001, it stated:

6 Taxpayers must be provided reasonable flexibility in the manner in which they
7 substantiate their research credits. Accordingly ... the failure to keep records in a
8 particular manner (so long as such records are in sufficiently usable form and detail to
substantiate that the expenditures claimed are eligible for the credit) cannot serve as a
basis for denying the credit.³⁷

9 In *Cohan v. Commissioner*, 39 F.2d 540, 543-544, the court held that the former Board of
10 Tax Appeals (which was the equivalent of the current United States Tax Court) could not completely
11 disallow travel and entertainment expenses in view of the fact that the Board found the taxpayer incurred
12 such expenses and such expenses were allowable for deduction. While the court recognized that the
13 taxpayer had not kept expense records, the court nonetheless held that “[a]bsolute certainty in such
14 matters is usually impossible and is not necessary; the Board should make as close an approximation as
15 it can, bearing heavily if it chooses upon the taxpayer whose inexactitude is of his own making.”

16 Congress in 1962 amended the Internal Revenue Code to require substantiation of any
17 claimed travel and entertainment expense,³⁸ but did not overrule the application of *Cohan* to other areas.
18 Thus, in *Fudim*, supra, the Tax Court held that a taxpayer could claim the R&D credit, even without the
19 substantiation of specific amounts claimed, if the evidence shows that the taxpayer engaged in qualified
20 research as defined in IRC section 41 and where there was some basis for estimating the amount of such
21 research. Because the taxpayer had two income sources – consulting and the patented research
22

23 ³⁶ In 1998, the IRS issued proposed regulations containing a requirement that the credit be allowed only where the taxpayer
24 recorded the results of the claimed credit qualifying experiments. See REG-105170-97, at 63 Federal Register 66,503,
25 Document 98-34970 (also available at 1998 Tax Notes Today (TNT) 234-84). However, when Congress renewed the IRC
26 section 41 credit in 1999, it included conference report language that rejected the proposed experiment-specific substantiation
27 requirement: “The conferees ... are concerned about unnecessary and costly recordkeeping burdens and reaffirm that
28 eligibility for the credit is not intended to be contingent on meeting unreasonable recordkeeping requirements.” H.R. Rep.
No. 106-478, page 132 (1999), Document 1999-36730 (also available at 1999 TNT 223-7).

³⁷ Treasury Proposed Regulation REG-112991-01, 66 Federal Register at 66,366.

³⁸ IRC section 274(d).

1 described above – the Tax Court “estimated the time spent on R&D under the principles set forth in
2 Cohan v. Commissioner”³⁹ and determined that 80 percent of the taxpayer’s income came from research
3 that qualified for the credit.

4 However, in *Eustace v. Commissioner* (7th Cir. 2002) 312 F.3d 905, the Court of Appeals
5 sustained the IRS’s denial of amended return claims for the R&D credit where the credit was not
6 claimed on the 1990, 1991, and 1992 federal returns for the subchapter S corporation in which the
7 taxpayers were shareholders. On December 30, 1993, the S corporation hired a new tax manager, who
8 determined that the S corporation should claim research credits for the 1990, 1991, and 1992 tax years.
9 The tax manager interviewed employees and delineated the employees and activities he believed
10 qualified for the research credit. The Court of Appeals held that the taxpayers’ reconstruction of
11 qualifying expenses was “unreliable, inaccurate, incomplete, and wholly insufficient to establish what
12 various workers did and whether such expenses qualify for the research credit.” While the court also
13 held that the taxpayers had not presented sufficient evidence to establish that the claimed activities met
14 the requirements for qualified research, the court suggested that the research credit might be applicable
15 to the subcomponents of those activities. The taxpayers acknowledged that they did not have the
16 substantiation necessary to tie salaries to activities at the subcomponent level but argued, under Cohan,
17 that the court would be required to make a reasonable allocation of salaries to functionality. However,
18 the court disagreed, holding that Cohan did not require it (i.e., the court) to make such an allocation.

19 In short, a taxpayer must demonstrate some “rational basis on which an estimate can be
20 made”⁴⁰ that goes beyond mere speculation, unsupported allegations, or mere inference.⁴¹ Such a
21 rational basis does not require project-specific documentation. In *Union Carbide*, the Tax Court found
22 that two of the taxpayer’s five claimed projects, which involved the conversion of raw hydrocarbon
23 feedstocks into olefins, were substantiated based on estimated base period wages, forecasts of material
24 costs, estimated project costs where no accounting records were available, and employee testimony

26 ³⁹ Fudim, *supra*, page 12.

27 ⁴⁰ Vanicek v. Commissioner (1985) 85 T.C. 731, 742-43.

28 ⁴¹ Appeal of Albert Hakim, 90-SBE-005 (Aug. 1, 1990).

1 regarding claimed wage expenses. Specifically, the court stated that:

2 the documents that petitioner produced were sufficient to substantiate its claim that the
3 MATRIC team identified all of the scientific research projects that occurred during the
4 base period and were sufficiently detailed to allow the MATRIC team to make reasonable
determinations as to the duration and production quantities of its intended runs.

5 On that basis, the court held that the taxpayer complied with the substantiation standard of Treasury
6 Regulation section 1.41-4(d), which requires that the taxpayer “retain records in sufficiently usable form
7 and detail to substantiate that the expenditures claimed are eligible for the credit.”

8 With respect to recordkeeping, in *McFerrin, supra*, the Fifth Circuit Court of Appeals
9 explained as follows:

10 Taxpayers are required to retain records necessary to substantiate a claimed credit. See
11 I.R.C. § 6001; Treas. Reg. § 1.6001-1(a), (e). If the taxpayer can establish that qualified
12 expenses occurred, however, then the court should estimate the allowable tax credit. See
13 *Cohan v. Comm’r*, [. . .] (“[T]he Board should make as close an approximation as it can,
14 bearing heavily if it chooses upon the taxpayer whose inexactitude is of his own making.
15 But to allow nothing at all appears to us inconsistent with saying that something was
16 spent.”); see also *Mendes v. Comm’r*, 121 T.C. 308, 316, (2003) (refusing to estimate
17 costs as taxpayer had failed to substantiate any qualified deduction); *Fudim v. Comm’r*,
18 67 T.C.Memo 1994-235, 67 T.C.M. (CCH) 3011, *12-*13 (1994) (accepting that
19 qualified research occurred, and then estimating the time spent on that research based on
20 “testimony and other evidence in the record”).

21 (*McFerrin, supra*, 570 F.3d at p. 675.)

22 In remanding the case back to the district court, the Fifth Circuit further explained:

23 If [the taxpayer] can show activities that were “qualified research,” then the court should
24 estimate the expenses associated with those activities. The district court need not credit
25 [the taxpayer’s] reconstruction of expenses from years after the fact. See *Eustace v.*
26 *Comm’r*, T.C. Memo 2001-66, 81 T.C.M. (CCH) 1370, *5 (2001). But the court should
27 look to testimony and other evidence, including the institutional knowledge of
28 employees, in determining a fair estimate. See *Fudim*, T.C. Memo 1994-235, 67 T.C.M.
(CCM) 3011, *12-*13.

(*McFerrin, supra*, 570 F.3d at p. 679.)

The 2008 IRS Audit Techniques Guide states as follows:

Section 41 does not contain a specific requirement that a taxpayer capture the costs of
research under a particular approach or accounting methodology. However, § 41 requires
the taxpayer to identify qualified research expenses (QREs) by business component
(qualified activity). It is essential that whatever method or approach is used by the
taxpayer, it must meet this requirement in order to establish its entitlement to the research
credit. A significant number of RC claims are prepared using a hybrid method that does
not properly establish the required nexus between QREs and qualified research activities
(QRAs). Also, most accounting systems contain information to identify and measure
expenditures without considering whether research and development activities meet the
statutory requirements under § 41.

1 Since project based accounting captures research costs at the “business component” level,
2 it generally establishes the required nexus, whereas cost center accounting does not
3 always provide the nexus between qualified activities and their related costs. Taxpayers
4 have employed a number of methodologies in reconstructing the amount claimed for the
5 research credit. Most RC studies reflect a combined hybrid approach. The hybrid
6 method may be a combination of Project and Cost Center methods, adopting portions of
7 each approach for which records are most easily available. The manner in which the
8 information is compiled typically does not support the relationship between the
9 accounting records and the research activities or QREs. Studies lacking this relationship
10 have failed to establish nexus, and therefore are not auditable. In other words, the nexus
11 problem is the inability to connect specific research project(s) and the underlying
12 activities to the qualified expenses.

13 A common example of the hybrid/nexus problem is in the case of qualified wages
14 established by capturing W-2 wage amounts by cost center and multiplying a qualified
15 percentage to individual employee’s wages or department total wages. The determination
16 of the “qualified” percentage is based on a selected manager’s recollection or estimate of
17 the amount of time particular employees devote to qualified activity, excluded activity, or
18 other nonqualified activities. These managers/employees are sometimes referred to as
19 Subject Matter Experts (SMEs). They may or may not have worked in the areas or
20 performed services for the taxpayer during the years for which they will be opining.
21 These representations may or may not be supported by measurable corroborative
22 records. In some instances, taxpayers may not even apply percentages at the employee
23 level. Rather, a single percentage is determined and applied to total department wage
24 costs.

25 Arbitrary and unsupported allocations should not be accepted. These are merely
26 estimates and are not sufficient to support a claim. Allocation percentages applied to
27 expenses associated with qualified research activities may be accepted only when the
28 appropriate prerequisites for applying such an approach have been met.

As for whether utility expenditures are extraordinary in nature, Treasury Regulation
section 1.41(b) provides in part as follows:

(b) Supplies and personal property used in the conduct of qualified research. (1) In
general. Supplies and personal property . . . are used in the conduct of qualified research
if they are used in the performance of qualified services (as defined in section
41(b)(2)(B), but without regard to the last sentence thereof) by an employee of the
taxpayer Expenditures for supplies or for the use of personal property that are
indirect research expenditures or general and administrative expenses do not qualify as
in-house research expenses.

(2) Certain utility charges. (i) In general. In general, amounts paid or incurred for
utilities such as water, electricity, and natural gas used in the building in which qualified
research is performed are treated as expenditures for general and administrative expenses.

(ii) Extraordinary expenditures. To the extent the taxpayer can establish that the special
character of the qualified research required additional extraordinary expenditures for
utilities, the additional expenditures shall be treated as amounts paid or incurred for
supplies used in the conduct of qualified research. For example, amounts paid for
electricity used for general laboratory lighting are treated as general and administrative
expenses, but amounts paid for electricity used in operating high energy equipment for
qualified research (such as laser or nuclear research) may be treated as expenditures for
supplies used in the conduct of qualified research to the extent the taxpayer can establish

1 that the special character of the research required an extraordinary additional expenditure
2 for electricity.

3 The term “qualified services”, as referenced in the Treasury regulation above, is defined in IRC section
4 41(b)(2)(B) as services consisting of (i) engaging in qualified research or (ii) engaging in the direct
5 supervision or the direct support of research activities which constitute qualified research.

6 Contentions

7 Appellants’ Opening Brief

8 As discussed in Issue 1 above, appellants state that PCB engaged PwC to conduct an
9 R&D study of its operations for the 1999 through 2005 tax years. Also, as mentioned above, once
10 PCB’s qualified activities were identified, appellants state that PwC and PCB identified the wages,
11 supplies, and contract research expenditures which comprised the components of PCB’s qualified
12 research expenses. (App. Opening Br., p. 11.)

13 As for qualified wages, appellants state that PwC used wage surveys to identify
14 “qualified percentages” which were determined as the percentage of time that employees in each
15 subsidiary performed qualified services during the 1999 through 2003 time period. Appellants assert
16 that, consistent with Treasury Regulation section 1.41-2(d), the wage surveys were completed by
17 department heads, engineering managers, or other high-level employees with direct knowledge of the
18 activities performed by employees in each subsidiary and that wage surveys were completed for each tax
19 year and for each department in all of PBC’s subsidiaries. Moreover, appellants assert that, to ensure the
20 authenticity and credibility of the documentation, the employees reviewed, signed, and dated the surveys
21 and understood the importance of the accuracy of their statements. Appellants state that the qualified
22 percentages calculated were then applied to the W-2 wages for the correlated year to obtain the amount
23 of qualified wage expense and that the wage qualified research expenses for tax years 1999 through
24 2003 averaged approximately 2 to 10 percent of total wages. (App. Opening Br., pp. 11-12.)

25 As for qualified supplies and qualified contract research expenditures, appellants state
26 that PBC provided PwC with the general ledger detail for each of the subsidiaries for each of the
27 relevant tax years to identify qualified contract research expenses and to identify the supplies used and
28 consumed in qualified research activities. Appellants then state that the appropriate average department

1 wage qualified research expense percentage was applied to arrive at total qualified supplies expenses
2 and contract research expenditures for each year, with such amounts averaging less than 10 percent of
3 respective totals annually. Appellants assert that, relating to contract research expenditures, PwC also
4 identified specific non-recurring engineering costs for the relevant tax years as well. (App. Opening Br.,
5 p. 12.)

6 As for the documentation which PCB provided in support of the R&D credits claimed,
7 appellants assert that neither the Internal Revenue Code or the Revenue and Taxation Code contain a
8 specific recordkeeping requirement for the R&D credit. Appellants state that a contemporaneous record
9 requirement was in place for the credit in the past but that, since the adoption of the new federal
10 regulations in 2003, the requirement for contemporaneous documentation was removed and the general
11 substantiation requirements of Treasury Regulation § 1.6001 were adopted. In fact, appellants contend
12 (citing H.R.Rep. No. 106-478, at 132 (1999) (Conf. Rep., I.R.S. T.D. 9104 (2003), I.R.S. T.D. 8930
13 (2001))) that the IRS considered and rejected the idea of establishing a stringent recordation
14 requirement, determining that such a requirement would place an unnecessary and costly recordkeeping
15 burden on taxpayers. Appellants state that, since R&TC section 23609 conforms to IRC section 41,
16 which provides that taxpayers are bound by the general substantiation standards which apply to all
17 taxpayers, the general documentation requirements of IRC section 6001 and the relevant federal case
18 law governs. (App. Opening Br., p. 22.)

19 Appellants state that IRC section 6001 requires taxpayers to “keep such records, render
20 such statements, make such returns, and comply with such rules and regulations as the Secretary may
21 from time to time prescribe.” In addition, appellants state that Treasury Regulation section 1.6001-1(a)
22 provides that any person required to file a return “shall keep such permanent books of account or
23 records, including inventories, as are sufficient to establish the amount of gross income, deductions,
24 credits, or other matters required to be shown by such person in any return of such tax or information.”
25 However, appellants argue that the Treasury and the IRS have concluded that not keeping records in a
26 particular manner, so long as such records are in a sufficiently-usable form to substantiate eligibility for
27 the credit, cannot serve as a basis for denying the credit. Similarly, appellants argue that the Tax Court
28 has held in several cases over the last 30 years that records do not have to be in a certain form for

1 purposes of substantiating the credit. (App. Opening Br., pp. 22-23.)

2 Appellants contend that the seminal tax record/documentation case is *Cohan, supra*,
3 which the Tax Court has applied specifically to R&D tax credit claims in *Fudim, supra*. Appellants
4 assert that the IRS in R&D examinations requests detailed contemporaneous written documentation
5 concerning the claimed research activities and, although these requests are premised on the presumption
6 of the taxpayer's burden of proof, such requests frequently go beyond the types of records that a
7 taxpayer would create and/or retain in the normal course of business. Appellants contend that, in *Fudim*,
8 the IRS argued that the taxpayer had not shown that he had engaged in R&D activities; however, the
9 Tax Court observed that the record included contemporaneous letters and scientific articles describing
10 the taxpayer's newly-developed process and two patents that reflected the research performed during the
11 tax years at issue. Appellants also assert that the Tax Court in *Fudim* found that (1) although the
12 taxpayer had not directly shown that supplies were used in his research, the court concluded that he had
13 not used the supplies for any other purpose and included the supplies in his research activities, and
14 (2) although the taxpayer failed to provide contemporaneous written records of the time that he, his wife,
15 and his daughter had spent on research, the court noted (citing *Cohan*) that, given the lack of written
16 documentation, reliance on the taxpayer's testimony and other evidence was appropriate. (App.
17 Opening Br., pp. 23-24.)

18 Appellants next contend that, in *Union Carbide v. Commissioner (Union Carbide)* 97
19 T.C.M. (CCH) 1207, the Tax Court again applied the *Cohan* rule to an R&D claim, allowing the
20 taxpayer to use the *Cohan* rule to estimate supply and wage data and to determine base-period expenses.
21 Appellants assert that the Tax Court concluded that the testimony of current and former Union Carbide
22 employees was acceptable to use to substantiate the qualifying nature of activities and associated costs,
23 including the credibility of witness testimony in 2007 regarding qualifying research expenses in 1994
24 and 1995. (App. Opening Br., pp. 24-25.)

25 Appellants state that, in *United States v. McFerrin (McFerrin)* (5th Cir. 2009) 570 F.3d
26 672, the Fifth Circuit also interpreted *Fudim* and observed that "the court should look to testimony and
27 other evidence, including the institutional knowledge of employees, in determining a fair estimate." In
28 applying the *Cohan* rule, appellants contend that the Court of Appeals in *McFerrin* concluded that

1 estimates may be used to determine a tax credit if the taxpayer can show it conducted qualified research
2 activities and testimony or other evidence to support the estimate. (App. Opening Br., p. 25.)

3 Appellants conclude that it is clear from *Fudim*, *Union Carbide*, and *McFerrin* that the
4 lack of contemporaneous documentation did not prevent taxpayers from successfully claiming the R&D
5 tax credit and that the courts in *Cohan*, *Fudim*, and *Union Carbide* understood that it was unreasonable
6 to expect taxpayers to keep a type of record that was not practical or normal for the taxpayer's trade or
7 business. As such, appellants argue that all evidence, including contemporaneous written
8 documentation, other written documentation, testimony, and other forms of documentation must be
9 taken into account and that it is inappropriate to not give proper consideration to oral testimony and
10 other evidence during an examination. (App. Opening Br., p. 25.)

11 Appellants argue that PCB met the four-part test of IRC section 41(d) as set forth by
12 Congress and the Department of the Treasury. Appellants assert that neither California law or federal
13 law specify a required format for R&D evidentiary support and that, in *Union Carbide* and *McFerrin*,
14 the taxpayer was given the choice of using different types of documentation available in the normal
15 course of the taxpayer's business. In *Union Carbide*, appellants assert that the taxpayer, like PCB, hired
16 experts to prepare a study of the taxpayer's qualified R&D and that the Tax Court accepted
17 reconstruction methodologies based upon the use of historical data, testimony corroborated by
18 documents, testimony taken alone, and estimations based upon the principles set forth in *Cohan*.
19 Appellants also contend that the court in *McFerrin* applied *Cohan* and concluded that estimates could be
20 used to determine tax credits if a taxpayer can show that it conducted qualified research activities,
21 through testimony or other evidence (including data reconstructed after R&D projects had been
22 completed), to support such estimates. (App. Opening Br., p. 26.)

23 Appellants argue that the executive surveys completed by PCB employees constitute the
24 written testimony of PCB's management and such statements are corroborated by the binders which
25 contain the representative samples of testing and design documentation and other evidence of process
26 improvement. Appellants contend that the documents provided by PCB to respondent are the exact type
27 of documents as those accepted by the courts in *Union Carbide* and *McFerrin*, cases in which the court
28 allowed an estimation for the R&D tax credit under the principles of *Cohan*. (App. Opening Br.,

1 pp. 26-27.)

2 As for respondent's denial of PCB's claimed credits, appellants assert that respondent, in
3 denying the credits, stated that PCB did not provide sufficient proof and that PCB applied an estimate
4 under the principles of *Cohan*. Appellants also assert that respondent implied that project accounting
5 was the required method of documentation to support a claimed R&D credit. Appellants argue that PCB
6 satisfied its burden of proof and that respondent failed to successfully rebut PCB's basis in the tax
7 credits or explain why PCB's evidence was insufficient in light of the requirements of IRC section 41,
8 the accompanying Treasury regulations, Treasury Regulation section 1.6001, or *Union Carbide*.
9 Appellants argue that PCB provided respondent with significant supplementary information gathered
10 from authorizations for expenditures and the credit study and should be allowed 100 percent of the
11 claimed R&D tax credits for the tax years at issue. (App. Opening Br., pp. 27-28.)

12 Respondent's Opening Brief

13 Respondent asserts that, pursuant to IRC section 41(b), a taxpayer must prove qualified
14 research expenses by showing a nexus to Step 1 qualified research. Respondent contends that PCB only
15 submitted Step 2 documentation in an attempt to prove Step 1 activity. However, because Step 1 is a
16 threshold issue for claiming the credit, respondent argues that, without proving any qualified research
17 activity, PCB cannot claim any expenses and must be denied the R&D credit in full. (Resp. Opening
18 Br., p. 18.)

19 Respondent states that the tax credit study submitted by PCB included "qualified activity
20 narratives" for PCB's executives to sign and "wage allocation questionnaires" which, respondent asserts,
21 claim an unsubstantiated percentage of PCB's employee wages. Respondent's analysis of these two
22 types of documents is based upon the documents PCB submitted for the Gladding McBean facility.
23 (Resp. Opening Br., p. 19.)

24 As for the qualified activity narratives, respondent contends that these documents are
25 faulty for a variety of reasons. First, respondent contends that, in a statement at the beginning of the
26 narrative (i.e., "This document describes how the qualified research expenditures ("QRE") paid or
27 incurred by Gladding McBean-Lincoln relate to activities which qualify as "qualified services" under
28 Internal Revenue Code ("IRC") §41"), PCB asks that its costs estimates be accepted without having first

1 proven the threshold issue of engaging in actual qualified research, i.e., attempting to prove Step 1
2 research by only looking at PCB's reconstructed estimate of Step 2. Next, respondent asserts that the
3 narratives fail to comply with the requirements of IRC section 41(d), as the narratives were not retained
4 as required by the recordkeeping mandate of Treasury Regulation section 1.41-4(d) but were created for
5 the credit study. In addition, respondent contends that the narratives (1) fail to identify the discrete
6 business components for which PCB claims the credit, (2) include no evidence of a process of
7 experimentation, and (3) assume facts without any proof of research. Respondent argues that the court
8 in *McFerrin* states that a taxpayer's reconstruction of expenses years after the fact need not be accepted.
9 (Resp. Opening Br., p. 19.) Respondent does note, however, that the narrative for the "pop-out" project
10 included a description of the process of experimentation, the only project to do so, but that the
11 documents which demonstrated the process of experimentation were attached to appellants' opening
12 brief, not the tax credit study. (Resp. Opening Br., p. 20.)

13 Respondent notes that the narratives did not, as required by IRC section 41(d)(2),
14 separately apply IRC section 41(d)(1) to each of PCB's business components. Respondent also notes
15 that the narrative for the Gladding McBean plant claimed that there was no attempt to develop internal
16 use software at that facility, but the wage allocation questionnaires for the facility claim that a total of 20
17 percent of an employee's time was spent doing just that (i.e., developing internal use software). (Resp.
18 Opening Br., p. 20.)

19 As for the wage allocation questionnaires, respondent asserts that this document is
20 nothing more than the non-contemporaneous recollection of a manager listing a blanket percent of
21 estimated time spent on a particular activity without any nexus to any proven qualified research activity
22 and without any thought to any work performed by any individual employee. Respondent contends that
23 PCB did not establish how the estimated percentages in the wage allocation surveys were determined
24 and that the 6 percent of wages determined for the all of the Gladding McBean employees for direct
25 support was claimed for each year irrespective of the potential eligibility of the activities. Respondent
26 notes that Mr. Keating's time, the chief ceramic engineer at the Gladding McBean facility and the likely
27 researcher of the "pop-out" project, was also measured at 6 percent like all of the other employees at the
28 facility, illustrating that there is no nexus between what PCB claimed on the wage allocation

1 questionnaires and what actually occurred. (Resp. Opening Br., pp. 20-21.)

2 As for nexus, respondent argues that PCB's wage allocation questionnaire estimation
3 method lacks a nexus between the amounts claimed as qualified research expenses, pursuant to IRC
4 section 41(b) (Step 2), and the activities claimed as being qualified research activities pursuant to IRC
5 section 41(d) (Step 1), as respondent was unable to verify that the documents which PCB provided
6 regarding claimed wages had any connection to a qualified research activity. (Resp. Opening Br., p. 22.)

7 Respondent states that IRC section 41(b)(2)(A)(i) provides that "in-house research
8 expenses" means "wages paid or incurred to an employee for qualified services performed by such
9 employee," such that there must be a nexus between the wages and the "qualified services". Respondent
10 notes that, at the H.C. Muddox plant, for example, PCB's estimates of qualified wages placed every
11 employee at the facility as claiming "direct support" of qualified research without actually claiming a
12 single employee as being engaged in any research. (Resp. Opening Br., p. 22.)

13 Consequently, respondent contends that PCB's documents do not prove that PCB's
14 wages were "qualified research expenses" under IRC section 41(b). Moreover, respondent argues that
15 PCB's wage allocation questionnaire documents are not records of research activities as the documents
16 do not tie in any meaningful way to any activities that might constitute research, let alone "qualified
17 research". (Resp. Opening Br., p. 23.)

18 Respondent also asserts that PCB's claimed expenses for supplies, extraordinary utilities,
19 and legal fees were not qualified expenses, as: (1) PCB's supply claims were only estimates and PCB
20 merely pulled test items out of the production line for review; (2) PCB's claimed utilities were merely
21 its utility expense as part of its normal, day-to-day operations; and (3) legal fees do not constitute
22 "qualified research expenses" under IRC section 41(b) because such payments do not constitute
23 "qualified services". (Resp. Opening Br., pp. 23-24.)

24 Respondent concludes that the "pop-out" project is PCB's only potentially-eligible
25 project, and that any claimed qualified research expenses would be limited to six employees for the
26 September 25, 2001, to December 5, 2002 time period, but that PCB failed to prove a nexus between the
27 activities of these six employees and their alleged qualified wages. As such, respondent asserts that
28 appellants are not entitled to the R&D tax credits claimed. (Resp. Opening Br., pp. 24-25.)

Respondent also asserts that there are other flaws with the projects at the Vernon facility (as summarized in Respondent's Opening Brief section of Issue 1 above): PCB claimed \$694,214 in "extraordinary utilities" as qualified research expenses for the tax year ending March 31, 2001, when, at the same time, PCB failed to claim any projects at that facility for that tax year. Respondent states that the total cost of installing the four projects above at the Vernon facility was \$407,562 and that two of the projects at that facility (the dissolved air floatation unit and the reject separator) have little to do with electricity or natural gas, the two largest components of PCB's alleged "extraordinary utilities".⁴² Moreover, respondent asserts that, apart from the fact that PCB conducted no qualified research at the Vernon facility, no utilities are listed in any of the "cost of project" sections for the projects summarized above, such that PCB provided no basis to prove that the Vernon utilities were extraordinary for any of the facility's alleged research projects. (Resp. Opening Br., p. 57.)

Appellants' Reply Brief

Appellants did not specifically address this issue in their reply brief.

Respondent's Reply Brief

Respondent argues that appellants have produced no evidence that PCB's activities (which appellants claim to be qualified activities) required extraordinary utilities, even if PCB's day-to-day manufacturing operations used more utilities than an average business does. Respondent asserts, in citing Treasury Regulation section 1.41-2(b)(2)(i), that, in general, amounts paid or incurred for utilities such as water, electricity, and natural gas used in a building in which qualified research is performed are treated as expenditures for general and administrative expenses. Moreover, respondent contends, in citing Treasury Regulation sections 1.41-2(b)(1) and 1.41-2(b)(2)(i), that the applicable regulation presumes that general and administrative expenses do not qualify as in-house research expenses and that such expenses cannot be included when computing the credit. (Resp. Reply Br., pp. 15-16.)

Respondent argues, citing Treasury Regulation section 1.41-2(b)(2)(ii), that this presumption can be overcome in the case of extraordinary expenditures used while engaged in qualified

⁴² Respondent notes that the court in *Union Carbide* stated:

"Treas. Reg. § 1.41-2(b) provides that general and administrative expenses do not qualify as qualified research expenditures (QREs), and Treas. Reg. § 1.41-2(b)(2)(ii) provides that utilities are generally treated as general and administrative expenses. However, Treas. Reg. § 1.41-2(b)(2)(ii) provides that utilities may constitute QREs if they are extraordinary."

1 research activities and that, to the extent a taxpayer can establish that the special character of the
2 qualified research required additional extraordinary expenditures, the additional expenditures should be
3 treated as amounts paid or incurred for supplies used in the conduct of qualified research. Respondent
4 contends that the first requirement is that a taxpayer must prove that it was engaged in qualified research
5 activities and that, here, PCB was not engaged in any such activities. (Resp. Reply Br., p. 16.)

6 Respondent contends that the “pop-out” project, which was PCB’s one potentially-
7 eligible project, did not require additional extraordinary expenditures because PCB did not identify,
8 document, or explain any such extraordinary activities, as PCB’s contemporaneous documentation
9 clearly demonstrates that any potentially-eligible activities were conducted during ordinary production
10 runs at the Gladding McBean facility. Respondent asserts that PCB was already using a large volume of
11 natural gas for its normal, day-to-day operations and that the “pop-out” project did not use or require
12 additional utilities for qualified research above and beyond what PCB was using for its normal
13 operations. (Resp. Reply Br., p. 17.)

14 Respondent argues that Treasury Regulation section 1.41-2(b)(2)(ii) clearly states that the
15 exception to the general rule regarding utilities only applies to the extent that a taxpayer can establish
16 that the special character of the research required an extraordinary additional expenditure. Here,
17 respondent contends that PCB added together the utility usage of six of its plants during the 2005 tax
18 year, a year not at issue in this appeal, and that appellants argue that the total yearly natural gas usage for
19 the six facilities appeared to be much higher than what the average manufacturer might use. Respondent
20 contends that the numbers provided (1) relate to a year that is not under consideration in this appeal and
21 (2) relate to PCB’s normal manufacturing activities. Consequently, respondent argues that PCB must
22 prove that it was actual qualified research activities which caused the extraordinary additional
23 expenditure for natural gas or electricity to occur. (Resp. Reply Br., p. 17.)

24 Respondent next argues that, other than the “pop-out” project, appellants have not proven
25 any qualified research activities. Respondent contends that appellants have not proven a “special
26 character” of the qualified research, such as the making of hand-pressed test tiles was so energy
27 intensive that such tests required the consumption of extraordinary additional natural gas or that the
28 running of tests in the laboratory were so energy intensive that such tests required extraordinary

1 additional electricity. Respondent contends that the “pop-out” test runs were performed concurrently
2 with the Gladding McBean facility’s everyday production runs which would have been performed with
3 or without the inclusion of the “pop-out” pottery in the same kiln, resulting in the use of no additional
4 natural gas. Respondent asserts that appellants have failed to quantify the amount of PCB’s additional
5 natural gas and electricity expense that is attributable to these activities. (Resp. Reply Br., pp. 17-18.)

6 Respondent emphasizes that Treasury Regulation section 1.41-2(b)(2)(ii) requires that a
7 taxpayer must establish that the special character of the research required the extraordinary additional
8 expenditure of electricity. As such, respondent contends that, even if it could be argued that the test tiles
9 required some additional natural gas, such would not amount to a production run which required PCB to
10 utilize an extraordinary additional expenditure of utilities. Consequently, respondent asserts that PCB’s
11 claimed utilities must be treated as general and administrative expenses under Treasury Regulation
12 section 1.41-2(b)(2)(i) and are not qualified research expenses under IRC section 41(b). (Resp. Reply
13 Br., pp. 18-19.)

14 STAFF COMMENTS

15 Appellants emphasize that there are no special recordkeeping requirements under IRC
16 section 41, but that taxpayers are merely subject to the general recordkeeping requirements of IRC
17 section 6001. Appellants also argue that the Treasury and the IRS have concluded that not keeping
18 records in a particular manner, as long as such records are in a sufficiently-usable form to substantiate a
19 taxpayer’s eligibility for the R&D credit, is sufficient. With respect to this issue, the question before the
20 Board is whether PCB’s records provide sufficient evidence to substantiate or reasonably estimate
21 appellants’ claimed qualified research expenses. In answering this question, the Board may find it
22 helpful to consider, as a factor, the amount, and the type, of the contemporaneous documentation
23 submitted versus the amount, and the type, of the non-contemporaneous documentation submitted.

24 Under the concept of nexus, appellants should be prepared to address the following
25 relating to two of PCB’s facilities:

26 ///

27 ///

28 ///

1 Gladding McBean plant; time spent by employees engaged in qualifying activities. In
2 reviewing the executive surveys for this facility (Resp. Opening Br., Exhibit M),⁴³ Mr. Padavona, the
3 general manager for this plant, claims that he spent 30 percent of his time for five consecutive years
4 “performing a qualified act”. This 30 percent figure includes time spent directing others and in meeting
5 with others. However, staff is unable to identify supporting evidence indicating that other employees
6 engaged in or claimed to be engaged in qualified research. At the hearing, appellants should be prepared
7 to discuss how Mr. Padovana estimated time spent on qualified research and the degree to which he
8 worked with others in his research activities, and should be prepared to identify the evidence in the
9 record supporting his estimate of time spent performing qualified research.

10 PABCO Gypsum Newark plant; president’s time directly supervising qualified research.
11 According to the executive survey of Alfred Mueller (the president of PABCO Gypsum Newark) (Resp.
12 Reply Br., Exhibit MM) for the tax year ending March 31, 2000, Mr. Mueller spent 60 percent of his
13 time⁴⁴ during that year engaged in directly supervising qualified research. In this document,
14 Mr. Mueller only mentions one project during that year, the ball mill project. Respondent asserts that it
15 requested information relating to Mr. Mueller and the Newark plant and that appellants responded, in a
16 December 16, 2010 letter, that “[t]he Taxpayer was unable to locate any additional information from the
17 Newark plant . . .” (Resp. Opening Br., Exhibit L.) Appellants should be prepared to address whether
18 there is other evidence of research activities at this facility, when such a large portion of the executive’s
19 time was allegedly dedicated to qualified research activities.

20 ///

21 _____
22 ⁴³ Exhibit M is Mr. Padavona’s executive summary relating to the Gladding McBean Lincoln plant for the tax years ending
23 March 31, 1999, March 31, 2000, March 31, 2001, March 31, 2002, and March 31, 2003. Each of the five surveys is dated
24 June 27, 2005, and each states that 30 percent of Mr. Padavona’s time was spent performing a qualifying act (e.g., 6 percent
25 of his time developing other manufacturing/R&D process enhancements; 4 percent of his time developing new corrugated
26 combinations or other products; 2 percent of his time engaged in statistical process control; 3 percent of his time in the direct
27 support of people who perform research; 6 percent of his time in technical meetings; 3 percent of his time in improvement
28 change requests relating to products or processes; etc.).

⁴⁴ According to the survey, the 60 percent of Mr. Mueller’s time is based upon the following: 14 percent of his time designing
the manufacturing line; 14 percent of his time developing other manufacturing/R&D process enhancements; 14 percent of his
time developing new products or improving existing products; 6 percent of his time in product specification and product
development testing; 6 percent of his time determining product specifications; and 6 percent of his time in improvement
change requests relating to products and/or processes.

ISSUE 3: Whether appellants have substantiated PCB's fixed-base percentage, as required by IRC section 41(c)(3)(A).

Applicable Law

As stated above, R&TC section 23609 provides a tax credit for "qualified research expenses" determined in accordance with IRC section 41. Generally, the credit under IRC section 41 is determined based on the amount by which the taxpayer's qualified research expenses exceed a "base amount." More specifically, IRC section 41(c) provides, in part, that:

(c) Base amount.

(1) In general. The term "base amount" means the product of--

(A) the fixed-base percentage, and

(B) the average annual gross receipts of the taxpayer for the 4 taxable years preceding the taxable year for which the credit is being determined (hereinafter in this subsection referred to as the "credit year").

(2) Minimum base amount. In no event shall the base amount be less than 50 percent of the qualified research expenses for the credit year.

(3) Fixed-base percentage.

(A) In general. Except as otherwise provided in this paragraph, the fixed-base percentage is the percentage which the aggregate qualified research expenses of the taxpayer for taxable years beginning after December 31, 1983, and before January 1, 1989, is of the aggregate gross receipts of the taxpayer for such taxable years.

* * *

(4) Election of alternative incremental credit.

(A) In general. At the election of the taxpayer, the credit determined under subsection (a)(1) shall be equal to the sum of--

(i) 3 percent of so much of the qualified research expenses for the taxable year as exceeds 1 percent of the average described in subsection (c)(1)(B) but does not exceed 1.5 percent of such average,

(ii) 4 percent of so much of such expenses as exceeds 1.5 percent of such average but does not exceed 2 percent of such average, and

(iii) 5 percent of so much of such expenses as exceeds 2 percent of such average.

(B) Election. An election under this paragraph shall apply to the taxable year for which made and all succeeding taxable years unless revoked with the consent of the Secretary.

For those taxpayers who do not have adequate records to establish their fixed-base percentage, IRC section 41(c)(4) provides an alternative method for computing the R&D tax credit. Treasury Regulation section 1.41-8T provides that an election under IRC section 41(c)(4) must be made with a taxpayer's timely-filed original return for the taxable year in which the election applies.

///

///

1 Contentions

2 Appellants' Opening Brief

3 Appellants did not specifically address this issue in their opening brief.

4 Respondent's Opening Brief

5 Respondent asserts that appellants are not entitled to the R&D credit because, under
6 R&TC section 23609, PCB did not substantiate its base amount or fixed-base percentage. Respondent
7 states that, under IRC section 41(c), a taxpayer must prove the base amount and fixed-base percentage
8 with historical qualified research documentation and accounting records (which respondent refers to as
9 Step 3). Respondent states that the R&D credit is a credit for increasing research activities, as the credit
10 is calculated based upon the amount that the qualified research expenses for the year at issue exceed the
11 base amount, pursuant to IRC section 41(a)(1), and the base amount is calculated by multiplying the
12 fixed-base percentage by a taxpayer's average annual gross receipts for the four preceding years,
13 pursuant to IRC section 41(c)(1). Further, if the fixed-base percentage cannot be, or is not, properly
14 calculated, then the credit cannot be properly calculated and, in such an instance, the taxpayer would not
15 be entitled to the R&D credit. (Resp. Opening Br., p. 25.)

16 Respondent next states that, under IRC section 41(c)(4) (i.e., the consistency
17 requirement), a taxpayer must determine its qualified research expenditures (Step 2) to be taken into
18 account in computing its fixed-base percentage on a basis consistent with its determination of qualified
19 research expenses for the credit year. In this instance, without having proven Step 1 qualified research
20 activities, it is impossible for PCB to calculate a fixed-base percentage at Step 3 and the proper
21 treatment is a denial of the credit in full. Respondent notes that, under IRC section 41(c)(4) (i.e., the
22 alternative incremental credit), an alternative method of claiming the R&D credit (on an original return)
23 is available for taxpayers who do not have adequate records to establish their fixed-based percentage
24 and/or for taxpayers who cannot meet the incremental hurdle of the regular R&D credit method. (Resp.
25 Opening Br., pp. 25-26.)

26 ///

27 ///

28 ///

Respondent contends that, here, PCB claimed a fixed-base percentage of 0.5 percent.⁴⁵ However, respondent asserts that PCB did not have the qualified research expense information necessary to determine the fixed-base percentage for the 1984 through 1988 base years so PCB calculated an estimate based upon one-third of the total alleged qualified research expenses for 1999 through 2004, over the total gross receipts for that same period. (Resp. Opening Br., pp. 26-27.)

Here, respondent claims that PCB based its base amount and fixed-base percentage on “discussions” but that PCB provided no record of such “discussions”. Moreover, respondent argues that uncorroborated discussions without corroborating documentation do not prove that activity occurred and, here, PCB did not submit Step 3 historical documentation as the basis for its calculations. As such, respondent argues that, as the accuracy of PCB’s fixed-base percentage cannot be established, it is impossible for respondent to determine whether PCB is even entitled to the “pop-out” project. (Resp. Opening Br., p. 27.)

Respondent asserts that, when comparing PCB’s method (i.e., PCB’s “discussion” estimated base period calculations) to the one used in *Union Carbide*, fact witnesses testified to corroborate the testimony of an expert witness and the documentation that the expert witness complied to approximate the taxpayer’s activities in the base period. Respondent argues that the court in *Union Carbide* limited its application of *Cohan* to the base period estimation and to a costing project and based its decision on expert and fact testimony and the documentary evidence presented at trial. Here, however, respondent contends that PCB’s after-the-fact accounting documentation does not indicate that PCB engaged in any qualified research activities during the base years as required by IRC section 41. As such, without this Step 3 historical research and accounting documentation, respondent argues that PCB does not have a fixed-base percentage and cannot claim the R&D credit. (Resp. Opening Br., p. 27.)

Respondent notes that IRC section 41, with respect to the base period calculations, has a consistency requirement. Respondent states that, pursuant to Treasury Regulation section 1.41-3(d),

⁴⁵ Pursuant to PCB’s cost accumulation binders, “the base period research expenses were one-third of what they are today in relation to gross receipts. Accordingly, the fixed base percentage was determined as 1/3 of the total 1999 through 2004 QRE divided by the total 1999 through 2004 GR.” (Resp. Opening Br., p. 26.)

1 taxpayers must include the same types of activities from the credit year and the base period when
2 identifying qualified research activities and include the same types of costs as qualified research
3 expenses for the credit year and the base period. As such, respondent argues that PCB must only include
4 the potentially-eligible “pop-out” project and related expenses and must exclude all of the expenses from
5 the other plants where no qualified research occurred and no qualified research expenses were allowed
6 and must substantiate the base period and fixed-base percentage with documentation (and not
7 “discussions” with company “historians”) which proves that research occurred in the base years. (Resp.
8 Opening Br., p. 28.)

9 Appellants’ Reply Brief

10 Appellants assert that, at audit, respondent did not review PCB’s base amount of fixed-
11 base percentage, as respondent denied the claimed credits without examining PCB’s methodology or
12 calculations. Appellants contend that respondent essentially reasons that PCB cannot establish a base
13 amount because it did not utilize the R&D credit in the past such that it is not now entitled to the credit.
14 Appellants argue that, under respondent’s approach, no taxpayer would ever qualify for the R&D credit
15 unless the taxpayer claims the credit from the time the taxpayer begins its business. Appellants note that
16 the IRS reviewed the same tax credit study as that provided to respondent and the IRS allowed PCB’s
17 claimed credits including PCB’s base amount and fixed-base percentage calculations. (App. Reply Br.,
18 p. 18.)

19 Respondent’s Reply Brief

20 Respondent asserts that it properly examined PCB’s base amount and fixed-base
21 percentage as the evidence which appellants provided for the first time on appeal, relating to the
22 underlying activities that were not qualified, materially affected PCB’s base amount and the fixed-base
23 calculations. Respondent states that the R&D credit is for increasing research activities, in that the
24 credit is calculated based upon the amount that the qualified research expenses for the year at issue
25 exceed the base amount, under IRC section 41(a)(1), and that the base amount is calculated by
26 multiplying the fixed-base percentage by a taxpayer’s average annual gross receipts for the four
27 preceding years, pursuant to IRC section 41(c)(1). Respondent argues that, if the fixed-base percentage
28 cannot be or is not properly calculated, the R&D credit cannot be properly calculated, such that a

1 taxpayer would not be entitled to the credit. (Resp. Reply Br., p. 23.)

2 Here, respondent asserts that, as PCB claimed the R&D credit on its amended returns, it
3 must prove that it is entitled to the credit, which requires that it prove the requirements of IRC section
4 41(d), 41(b), and 41(c). Respondent contends that appellants produced new evidence with their opening
5 brief which appellants assert demonstrated that qualified research activities were performed and that
6 qualified research expenses were incurred. Consequently, respondent contends that, as an essential
7 component of an R&D credit claim, it must examine PCB's fixed-base percentage and base amount
8 calculation in light of this new evidence, which it did in detail in its opening brief. (Resp. Reply Br.,
9 pp. 23-24.)

10 STAFF COMMENTS

11 Where, as is the case here, a taxpayer has not elected to use the "alternative incremental
12 research credit" under IRC section 41(c)(4) (an election that must be made with the filing of a taxpayer's
13 original return), and the taxpayer is not a "start-up company" as defined in IRC section 41(c)(3)(B), the
14 fixed-base percentage must be determined in order to calculate the amount of the R&D credit. IRC
15 section 41, subdivisions (a) and (c), provide that the credit is only available to the extent that qualified
16 research expenses exceed the "base amount", and the "base amount" can only be determined by
17 reference to the fixed-base percentage. At the hearing, appellants should be prepared to explain PCB's
18 methodology for determining the fixed-base percentage and identify the evidence supporting its
19 calculation of the fixed-base percentage.

20 ///

21 ///

22 ///

23 Pacific Coast Building Products Inc_ase.doc